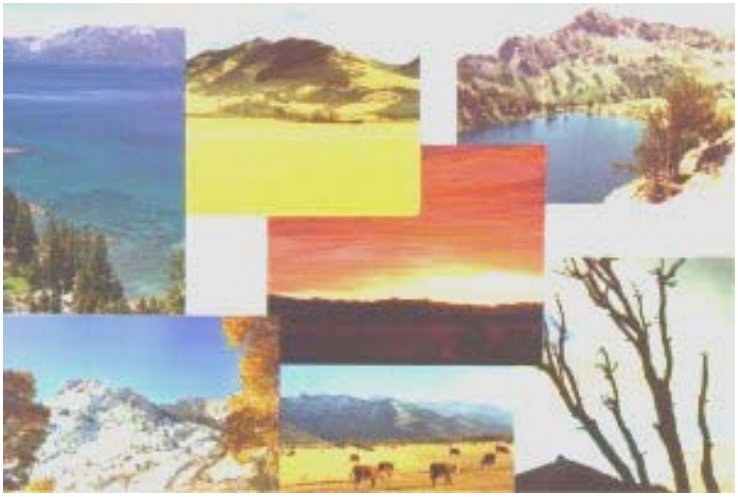
STATE OF NEVADA

Bureau of Air Quality

1990 - 2001

Trend Report



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STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY PLANNING

AMBIENT AIR QUALITY TRENDS

1990-2001

A C K N O W L E D G M E N T S

This Trend Report presents ambient air quality data collected by three independent Nevada agencies, the California Air Resources Board, and the National Park Service. The Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Air Quality Planning gratefully acknowledges the ambient monitoring data contributions of the Clark County Department of Air Quality Management; the Washoe County District Health Department, Air Quality Management Division; the California Air Resources Board, Monitoring and Laboratory Division; and the National Park Service, Air Resources Division in the preparation of this report.

The Nevada Bureau of Air Quality Planning also thanks its former network of particulate sampling operators from government and private industry and its current particulate sampling contractor at these rural locations:

Battle Mountain: Daun Bohall; Sierra Pacific Power Company, Valmy Plant staff members; Douglas S. Neill
Elko: Douglas S. Neill
Fallon: Alton Lavelle Green, Jr.
Lehman Caves: John Innes, Great Basin National Park staff members
Lovelock: Jim Roberts; Dale L. Talcott; Valdine McLean, Pershing County School District
McGill: Kennecott Nevada Copper Company staff members
Minden: Paul Patterson

Special thanks are extended to the Nevada Bureau of Air Quality Planning's former monitoring network contractor, the Desert Research Institute, for its support of the Bureau's monitoring data processing, data quality assurance, and equipment maintenance and repair efforts.

The cover photographs are courtesy of Stefan Hoelscher, Nevada Bureau of Air Quality Planning.

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INTRODUCTION AND SUMMARY

The primary emphasis of this Trend Report is to present data on monitoring for various airborne pollutants and identify trends in these pollutant levels. The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS). The EPA set these standards to protect human health and welfare. Primary standards are designed to protect human health, including sensitive populations such as the elderly and children. Secondary standards protect public welfare and address the effects of air pollution on vegetation, materials, and visibility.

Air pollution comes from a variety of sources. These include "stationary sources," such as factories, power plants and smelters; smaller sources, such as dry cleaners and degreasing operations; "mobile sources," such as cars, trucks, buses, trains and planes; and "natural sources," such as windblown dust and wildfires.

The six principal air pollutants ("criteria" pollutants) with primary standards are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (with an aerodynamic size less than or equal to 10 microns, or PM_{10}, and with an aerodynamic size less than or equal to 2.5 microns, or $PM_{2.5}$), and sulfur dioxide (SO_2). Effective September 16, 1997, new standards for eight-hour ozone concentrations and for particulate matter less than or equal to 2.5 microns in size ($PM_{2.5}$) were added to the list of standards for the principal pollutants. The finer particle size standards for $PM_{2.5}$ provide increased protection against a wide range of health effects related to respiration of particulate matter. Monitoring for the new $PM_{2.5}$ standards began in 1999.

The State of Nevada has its own air quality standards that are generally based on the national standards for air quality. In addition to the state standards for the criteria pollutants, Nevada has an air quality standard for the non-criteria pollutant hydrogen sulfide (H_2S), which is a toxic gas characterized by a disagreeable odor. Monitoring for hydrogen sulfide is generally confined to the proximity of industrial sources of this pollutant.

The Nevada Revised Statute 445B.100 establishes public policy regarding air quality in Nevada. This statute states:

> *It is the public policy of the State of Nevada . . . to achieve and maintain levels of air quality which will protect human health and safety, prevent injury to plant and animal life, prevent damage to property, and preserve visibility and scenic, esthetic and historic values of the state.*

One goal of the Nevada Division of Environmental Protection, Bureau of Air Quality Planning, and the air quality agencies of Washoe County and Clark County, is to determine current and projected concentrations of ambient air contaminants within the state, and to develop and implement measures by which the ambient air quality standards will be achieved and maintained.

Continuing increases in the population base and industrial community necessitate measures to control the attendant deterioration of the air quality. Programs requiring air quality operating permits for stationary sources of air pollution minimize the pollution of the air by industrial facilities. Similarly, an inspection and maintenance program for the urban areas of Reno and Las

Vegas is in place to reduce harmful automotive exhaust emissions from mobile sources.

There have been important successes in counteracting the tendency toward worsening air quality with growth. The most significant success has been the improvement in levels of lead pollution in the ambient air after the elimination of lead from gasoline. There were also substantial decreases in the concentrations of the automotive exhaust pollutants carbon monoxide, nitrogen oxides and hydrocarbons, with the improvement of automotive engine design and the winter use of oxygenated fuels. Nitrogen oxides from automotive exhausts react with volatile organic compounds in the air, especially in the presence of sunlight and heat, to produce the ground-level air contaminant, ozone. Thus, the vapor recovery program for refilling underground gasoline tanks resulted in major reductions of ozone pollution.

Table 1 summarizes the national long-term changes in pollutant emissions and ambient air concentrations for NAAQS pollutants (Latest Findings on National Air Quality: 2001 Status and Trends, EPA, Sept. 2002). The table shows that emissions of the principal pollutants, with the exception of carbon monoxide, decreased between 1992 and 2001. However, progress in improving ozone levels was slow in the southern and north-central regions of the United States, and ozone (eight-hour) levels have worsened in 33 of our national parks. Nationally, much of the ground-level ozone pollution is caused by increased emissions of nitrogen oxides from non-road engines, like construction and recreation equipment, and diesel vehicles, according to the EPA report.

Since 1970, aggregate emissions of the principal pollutants tracked nationally have decreased 25 percent. These reductions occurred during a period of significant population and economic growth. Since 1970, total U.S. energy consumption has increased 42 percent, vehicle miles traveled have increased 149 percent, and gross domestic product has increased 161 percent.

Table 1. Changes in Emissions and Air Quality (1982-2001)*

Criteria Pollutant	**Air Quality Pollutant Concentration Change**		**Pollutant Emissions Change**	
	1992-2001	**1982-2001**	**1992-2001**	**1982-2001**
Carbon Monoxide	-38%	-62%	+6%	0%
Lead	-25%	-94%	-5%	-93%
Nitrogen Dioxide	-11%	-24%	-3% (NO_x)	+9% (NO_x)
Ozone (1-Hour) (8-Hour)	-3% 0%	-18% -11%	-8% (VOC)	-16%(VOC)
PM_{10}	-14%	n/a	-13%**	-51%**
$PM_{2.5}$	n/a	n/a	-10%**	n/a
Sulfur Dioxide	-35%	-52%	-24%	-25%

*Air quality concentrations do not always track nationwide emissions (see discussion).

**Includes only directly emitted particles

Air quality concentrations do not always track nationwide emissions, as can be seen for the pollutant carbon monoxide in Table 1. There are several reasons for this. Since most monitors are located in

urban areas, air quality is most likely to track changes in urban air emissions, rather than in total emissions. Also, not all of the principal pollutants are emitted directly into the air. Ozone and many particles are formed after directly emitted gases react chemically to form them, and this process can be affected by weather conditions such as hot temperatures and stagnant air.

The Reno area is currently designated nonattainment for the carbon monoxide, inhalable particulate matter (PM_{10}) and one-hour ozone standards. However, there has not been a violation of the carbon monoxide standards in the Reno area since 1991, and the one-hour ozone standard has not been violated since 1990. Violations of the 24-hour PM_{10} standard in Reno in 1990 and 1991 resulted in the nonattainment designation for the 24-hour standard. The Reno area exceeded the annual PM_{10} standard at one site until 1995 and again in 1999. The 1999 exceedance caused the Reno area to be reclassified as "serious" in degree of nonattainment for PM_{10}. The Washoe County Air Quality Management Division has submitted to the EPA a State Implementation Plan for the "serious" classification of PM_{10} nonattainment. The Reno area now has three consecutive years (2000-2002) without an exceedance of the PM_{10} standards, and can submit a maintenance plan to the EPA and request redesignation to attainment for the PM_{10} standards.

The Las Vegas area is not in attainment of the standards for carbon monoxide and PM_{10}. The monitoring data generally document improvement in carbon monoxide concentrations in the Las Vegas area between 1990 and 1997 for eight-hour averaging periods. There were no exceedances of the carbon monoxide standards in the Las Vegas area during the three-year period of 1999 through 2001, and the Clark County Department of Air Quality Management is preparing a maintenance plan for carbon monoxide. Redesignation of the Las Vegas area to attainment of the carbon monoxide standards is expected.

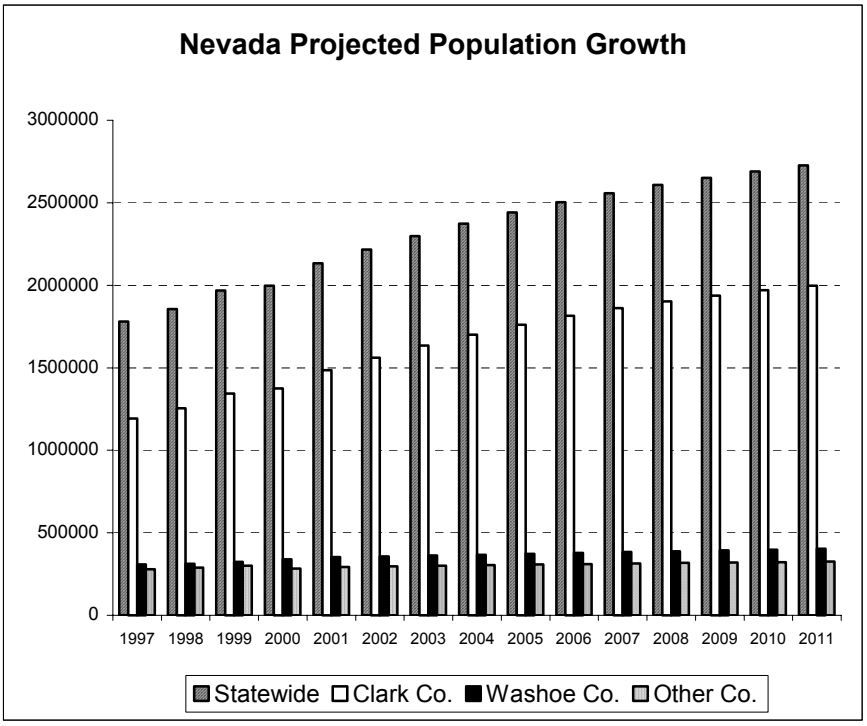
In Nevada, the highest 24-hour concentrations of PM_{10} are often the result of high winds and dry desert terrain. Because these conditions can occur at any time throughout the year, the PM_{10} concentrations are likely to show more variation than the data for other pollutants. Weather also affects pollutant levels in other ways. In the winter, when strong temperature inversions occur in basins surrounded by mountains, carbon monoxide and suspended particulates are trapped near ground level, causing poor air quality. Thus air pollution trends may reflect the occurrence or absence of strong inversions during winter. In the summer, ozone concentrations increase as the temperature and amount of sunlight increase.

Considering all the air quality pollutants statewide, the monitoring data generally show no deterioration in the air quality of Nevada over the report period and improvement in carbon monoxide levels. Pollution trends for specific monitoring sites are presented in Appendices 3 and 4.

DEMOGRAPHICS

The population of the State of Nevada has increased substantially over the last three decades. Between 1960 and 1990 the statewide population increased 237 percent. In 2001 the state population reached an estimated 2,132,498. The 2001 population for Clark County, which contains Las Vegas, was estimated at 1,485,855, and Washoe County, which contains Reno, had a population estimated at 353,271.

The Nevada State Demographer's Office has completed a new 20-year forecast for the State of Nevada and its counties. It is expected that the state will have a total population of 2,725,929 by the year 2011.



Population growth will be based primarily in the urban areas of the state and particularly in Clark County, which includes Las Vegas. If Clark County growth keeps up its expected pace, its population will grow from 1.49 million persons to 2.00 million in 2011.

Washoe County, which includes Reno, the other major urban area of the state, is expected to grow from 353 thousand persons to 403 thousand in 2011.

In 1990 the two most populous counties of Clark and Washoe comprised 83 percent of the total state population. In 2001 the same two counties accounted for 86 percent of the total state population. In 2011 it is estimated that these two counties will account for 88 percent of the statewide population.

The largest population increases will occur in the populous counties. The highest growth rates over the next ten years are projected to occur in Clark County (3.0%), Nye County (2.9%), and Lyon County (2.0%). The statewide growth rate is expected to be 2.5 percent over the 10-year period. While Clark County is estimated to grow 3.0 percent over the period, Washoe County is projected to grow 1.3 percent. Four counties are projected to experience population decreases over the 2001-2011 period: Mineral County (-2.7%), White Pine County (-2.4%), Pershing County (-1.2%), and Lander County (-0.7%).

NEVADA AIR QUALITY PROGRAMS

The State of Nevada is divided into three jurisdictions which manage their own air programs by designation of the Nevada State Legislature. There are three separate and independent major monitoring networks gathering air quality data within the state. The Nevada Department of Conservation and Natural Resources, Division of Environmental Protection (NDEP), Bureau of Air Quality Planning (BAQP) is responsible for air quality surveillance in all areas of the state other than Clark County and Washoe County. Air quality data for Clark County are collected by the Clark County Department of Air Quality Management. Air quality data for Washoe County are obtained by the Washoe County District Health Department, Air Quality Management Division. The exception to this rule is that the NDEP has air quality jurisdiction, including ambient air quality monitoring, statewide over fossil fuel-fired steam generating units (power plants). In addition to these three major monitoring networks, air quality monitoring is being conducted by the National Park Service, Air Resources Division at Lehman Caves, along the eastern border of the state near Baker.

By multiagency cooperative agreement, the California Air Resources Board conducts ambient air quality monitoring on both the California and Nevada sides of the Lake Tahoe hydrographic basin. On the Nevada side of the basin, this has included monitoring for carbon monoxide at Stateline; ozone, PM_{10} and $PM_{2.5}$ at Cave Rock; and nitrogen dioxide and $PM_{2.5}$ at Incline Village.

The NAAQS published by the EPA in 40 CFR Part 50 define the levels of air quality necessary to protect human health and welfare. An area is considered to be in nonattainment for a pollutant if it has violated the NAAQS (generally, more than one exceedance of the NAAQS annually) for that pollutant. Table 2 is the attainment status for the three state air programs. The national air quality standards (NAAQS) and state air quality standards are presented in Appendix 2.

Table 2. Attainment Status for Criteria Pollutants by Air Program

Nevada Air Program	Attainment Status for Criteria Pollutants
NDEP/Bureau of Air Quality Planning	Unclassifiable/attainment for all criteria pollutants, except nonattainment for carbon monoxide on the Nevada side of Lake Tahoe[a]
Washoe County District Health Dept. Air Quality Management Division	Nonattainment for carbon monoxide, particulate matter (PM_{10}), and ozone[a, b]
Clark County Department of Air Quality Management	Nonattainment for carbon monoxide and particulate matter (PM_{10})
National Park Service Air Resource Division	Unclassifiable/attainment for all criteria pollutants

[a] The EPA has classified as nonattainment for carbon monoxide the portions of Douglas, Carson City, and Washoe counties inside the hydrographic basin containing Lake Tahoe. This classification is based on monitoring done at Stateline in the 1970's. The state has requested redesignation of the Nevada side of the Lake Tahoe hydrographic basin into attainment of the carbon monoxide standards and has submitted a limited maintenance plan to the EPA.

[b] In 1994 the Washoe County Air Quality Management Division initiated a request by the State of Nevada for EPA redesignation of Washoe County to attainment for ozone.

TYPES OF MONITORING STATIONS

Ambient air monitoring stations in this report fall into five categories:

1) National Air Monitoring Stations (NAMS)
2) State and Local Air Monitoring Stations (SLAMS)
3) National Particulate Network (NPN) Stations
4) Special Purpose Monitoring Stations (SPMS)
5) National Park Service Gaseous Air Pollutant Monitoring Network

Some sites may represent more than one of these categories.

The NAMS sites are regarded as national trend sites and are selected by national and state environmental representatives and approved by the national NAMS site coordinator at the EPA research center.

The SLAMS sites are the long-term air quality monitoring stations located throughout the state. They are operated either by the state or by a local agency. Most air quality monitoring data are generated at SLAMS sites.

The NPN sites provided for supplementary analysis of particulate filters for substances such as metals and benzo(alpha)pyrene, a hydrocarbon. The NPN program operated until 1991.

The SPMS sites are established to determine the air quality of a relatively small area or to monitor on a temporary basis. These sites usually operate for six to 24 months, and are generally used to measure air quality in areas not previously monitored. They are also established to monitor the effects of a specific air pollution source on the surrounding air quality.

The National Park Service Gaseous Air Pollutant Monitoring Network site is used to determine the effect of air quality on the park unit's biological resources as well as the health of park unit residents and visitors.

Appendix 1 provides site descriptions and Aerometric Information Retrieval System (AIRS) site numbers for ambient air sampling stations statewide. Monitoring data may not be available for all the monitoring stations for all the years in the report period.

STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

The state ambient air quality standards and the corresponding national ambient air quality standards are listed in Appendix 2, Table 1. Although the national one-hour standard for ozone was supplemented with an eight-hour standard effective September 16, 1997, and new national standards for $PM_{2.5}$ were added, the state standards will not reflect these changes until the federal implementation guidance has been issued and regulation changes can be adopted. The state has conducted ambient monitoring for $PM_{2.5}$ since 1999. Nationwide designations of attainment status for the $PM_{2.5}$ standards are expected to be made in December 2003.

Excluding the 1997 national standards, which were challenged in the courts, the state standards and national primary standards for criteria pollutants are the same or approximately the same with the exceptions of ozone in the Lake Tahoe basin and eight-hour carbon monoxide above 5,000 feet elevation. For these exceptions, the state standards are more stringent than the national standards. Furthermore, a violation of a short term standard for carbon monoxide or sulfur dioxide is generally not incurred under national standards until the second annual exceedance, while a violation is incurred under the state standards for all pollutants at the first exceedance.

Determinations of violations of the national primary standards for PM_{10} and ozone are complicated by the need to round 24-hour PM_{10} concentrations to the nearest 10 Fg/m^3 and to determine "expected" values based on calculations involving the most recent three or more years' data, in accordance with 40 CFR 50, Appendix K. Appendix N to 40 CFR 50 is not used for comparisons to the PM_{10} standards because the 1997 PM_{10} standards were vacated by the courts (D.C. Circuit, May 14, 1999). The PM_{10} data presented in this report have not been manipulated according to the national method for determining attainment of the national ambient air quality standards. Instead, they are raw data suitable for comparison with the state standards.

Comparisons to the national $PM_{2.5}$ standards are complicated by the need to compare to the 24-hour standard the 98^{th} percentile of the distribution of the 24-hour concentrations for a period of one year, averaged over three years.

Finally, the national one-hour ozone standard is attained when, based on a three-year average, the expected number of days per year with a maximum hourly average above the standard is not more than one. The one-hour ozone standard was supplemented on September 16, 1997 with a national eight-hour standard, which is based on a three-year average of the annual fourth-highest daily maximum eight-hour average ozone concentrations.

POLLUTANTS

The principal ambient air pollutants, based on public health concerns, have been identified by the U.S. Environmental Protection Agency as “criteria” pollutants. One of these pollutants, lead, has not been a widespread ambient air quality concern since the removal of lead from gasoline. The criteria pollutants of ambient air—carbon monoxide, lead, ozone, nitrogen dioxide, sulfur dioxide and suspended particulate matter as PM_{10} and $PM_{2.5}$—are discussed below.

- Carbon Monoxide

  Carbon monoxide (CO) is a colorless, odorless, poisonous gaseous pollutant. The primary sources of CO are motor vehicles and other combustion sources. It is formed from the combustion of hydrocarbon fuels from internal combustion engines, from home heating devices such as fireplaces, stoves and furnaces, and from industrial sources of combustion. Motor vehicle exhaust contributes about 60 percent of all CO emissions nationwide. In cities, as much as 95 percent or more of all CO emissions emanate from automobile exhausts. These emissions can result in high concentrations of CO, particularly in areas with

  heavy traffic congestion. Other sources of CO emissions include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires.

Carbon monoxide concentrations are significantly affected by meteorological conditions, with high concentrations principally occurring during inversion periods and cold weather. A temperature inversion is present when air temperature increases with altitude, so that a warm air layer traps cooler air beneath it. The increasing levels of CO are then trapped and concentrated from the lack of vertical mixing dispersion by winds. Inversions are most frequent and have the smallest mixing depths during late fall and winter, thus contributing to elevated CO levels. This problem is compounded during periods of high pressure dominance, when atmospheric stability allows little vertical or horizontal mixing. The combination of valley basins and heavy motor vehicle traffic, with seasonal influences (temperature inversions during late fall and winter months), provides for the occurrence of elevated CO levels which may be harmful to human health and welfare.

Carbon monoxide in high concentrations can be a silent killer, as it has a strong affinity for combining with the hemoglobin of the blood. This, in turn, causes the hemoglobin to be less readily available to perform the function of carrying oxygen to the tissues. Increased automobile use through the years has been a factor in increased CO levels and health risks. People who suffer from cardiopulmonary disease, anemia, or who smoke tobacco are most likely to be affected by high CO levels. Those who may be exposed through occupational duties are also candidates for increased health risks. Lower concentrations of CO may cause such effects as headaches, diminished alertness, slower reaction time and faster blood clotting.

Monitoring data for CO concentrations in Nevada are presented in Appendix 3, Tables 1-6.

- Lead

In the past, automotive sources were the major contributor of lead (Pb) emissions to the atmosphere. As a result of the EPA's regulatory efforts to reduce the content of Pb in gasoline, the contribution from the transportation sector has declined. Today, smelters and battery plants are the major sources of Pb emissions to the atmosphere. The highest concentrations of Pb are found in the vicinity of nonferrous smelters and other stationary sources of Pb emissions.

Exposure to Pb mainly occurs through the inhalation of air and the ingestion of Pb in food, water, soil, and dust. It accumulates in the blood, bones, and soft tissues. Excessive exposure to Pb may cause mental retardation and behavioral disorders. Even at low doses, Pb exposure is associated with changes in fundamental enzymatic, energy transfer, and homeostatic mechanisms in the body. Recent studies show that Pb may be a factor in high blood pressure and subsequent heart disease.

As a result of the elimination of Pb from gasoline, Pb concentrations in the ambient air are generally so low that monitoring for Pb is not necessary. Data for lead monitoring in the Las Vegas area during the report period are not presented in this report.

- Ozone

Ground level ozone (O_3) is a toxic gas, one of a group of complex oxidants found in the

ambient air. Unlike other pollutants, O_3 is not emitted directly into the air by specific sources. Ozone is photochemical in nature, meaning that it is formed in the air by chemical reactions among nitrogen oxides, oxygen, and hydrocarbons in the presence of sunlight. Some of the more common sources are gasoline vapors, chemical solvents, combustion products of various fuels, and consumer products. These products can be frequently found in large industrial facilities, gas stations, and small businesses such as bakeries and auto body repair shops. Often these "precursor" gases are emitted in one area, but the actual chemical reaction, stimulated by sunlight and hot, stagnant conditions, takes place in another. Combined emissions from motor vehicles and stationary sources can be carried hundreds of miles from their origins, forming high O_3 concentrations over very large regions.

Ozone in different layers of the atmosphere (i.e., stratospheric O_3 versus ground level O_3) exhibits different effects, while the physical substance remains the same. In the upper atmosphere, O_3 is produced by sunlight from oxygen in the air. Near the ground, O_3 is produced primarily from man-made compounds. It is important to note that the O_3 near the ground affects man adversely and therefore is considered a harmful pollutant. The stratospheric O_3, however, is essential to human survival, as it plays a key role in determining the temperature of the stratosphere and prevents harmful ultraviolet solar radiation from reaching the earth's surface. Over the last two decades, growing concern has been expressed for maintaining the irreplaceable high-altitude layer of this compound, while at the same time the O_3 near the ground is a harmful pollutant. Ozone is the most abundant and most reliably measured oxidant present in the air.

While O_3 in the air can be related to both natural and man-made processes, measurements indicate the high concentrations in or near large urban centers are from man-made sources. An important factor in O_3 occurrence is the weather. Long sunny days (spring, summer and fall) induce elevated levels of O_3.

Studies have shown that continued exposure to O_3 levels of 0.3 parts per million (ppm) causes nasal and throat irritation, while short exposure to concentrated levels of 0.5 to 1.0 ppm causes changes in pulmonary function, increased airway resistance, decreased vital capacity, decreased carbon monoxide diffusing capacity, and decreased forced expiratory volume. Concentrations much less than those enumerated above affect asthmatics, impair physical performance, and can result in headaches, chest discomfort, and coughs. Even moderately vigorous exercise is likely to increase the risk of health effects from O_3. Individuals may be adversely affected by varying levels of O_3 exposure, depending on their physical condition.

Beyond public health, vegetation, including agricultural and commercial forest yields, and entire ecosystems may be affected. Ozone has been known to reduce crop yields of citrus, cotton, potatoes, soybeans, wheat, spinach and other sensitive crops, as well as cause visible injury to a variety of plant species. Ozone-related reductions in forest seed production may alter the species composition of wildlife in the ecosystem. Ozone also cracks rubber, weakens textiles, causes dyes to fade and causes certain paints and coatings to deteriorate.

In summary, the production of photochemical oxidants has clearly been related to the exhaust pollutants discharged by automobiles and emission of hydrocarbons from gasoline

handling. The presence of hydrocarbons, oxides of nitrogen, and sunlight at temperatures in excess of 68EF are ideal conditions for formation of O_3 and other photochemical oxidants.

Monitoring data for O_3 concentrations in Nevada are presented in Appendix 3, Tables 7-12.

- Nitrogen Dioxide

Nitric oxide (NO) and nitrogen dioxide (NO_2) are the two nitrogen oxides (NO_x) of primary concern to air quality control programs. Nitrogen oxides are formed by fuel combustion in automobiles, diesel vehicles, off-road construction and recreation equipment, power plants, industries, homes and offices. Nitric oxide reacts with oxygen in the air to produce NO_2. Motor vehicles and other fuel-burning processes are the main sources of NO and NO_2 in the atmosphere.

Nitrogen dioxide has been associated with adverse effects on health more than any other nitrogen oxide. At higher exposures, NO_2 causes respiratory system damage of various types, including bronchial damage. Its effects are displayed by increased susceptibility to respiratory infection and emphysematous changes. Airborne nitrogen oxides are also one of the primary sources of nitrogen pollution in certain bodies of water, such as the Chesapeake Bay.

While natural background emissions of NO_x compounds are known to exist, research has shown the levels to be many times lower than those found around metropolitan and industrialized areas. Therefore, the man-made contributions to the NO_x pollutant levels are of great concern.

Monitoring data for NO_2 concentrations in Nevada are presented in Appendix 3, Tables 13-15.

- Sulfur Dioxide

Sulfur oxides (SO_x) commonly originate from burning fossil fuels. They also are produced industrially (e.g., smelting and chemical preparation). Sulfur dioxide (SO_2) is the criteria pollutant of concern. Examples of highly concentrated sources of SO_2 are metal smelting and oil refining industries and large oil- or coal-fired electric power plants. While fuels with lower sulfur levels have been utilized, they are more costly and less heat-efficient for industrial processes. There is an evident seasonal variation for SO_2 and, because industrial consumption does not vary much throughout the year, SO_2 is associated mainly with power generation and domestic heating.

In the air, SO_2 reacts with oxygen, ammonia and other compounds, including water vapor, to form sulfate salts and sulfuric acid mist. It is historically the most prominent of the gaseous pollutants. Sulfur dioxide was the main suspect in such disasters as the London Killer Fog Episode of 1952. In a five-day period, fog, SO_2 and a temperature inversion in the valley of the Thames River caused severe illness and an unusually large number of deaths. It is believed that SO_2, in combination with particulate pollution, provided the unhealthy environment that existed.

Sulfur dioxide primarily irritates the respiratory system. At low concentrations, it causes constriction of the bronchi. While these effects are not proportional to exposure time, continuous exposure does produce irreversible degenerative changes. Generally, for short periods of exposure, the effect is seen in the first minute or two. It is more likely to affect the elderly and those people who already suffer from respiratory diseases such as asthma, chronic bronchitis and emphysema.

Monitoring data for SO_2 concentrations in Nevada are presented in Appendix 3, Table 16.

- Particulate Pollutants

Particulate pollutants generally consist of a mixture of particles of dust, pollen, ash, soot, metals and other various solid and liquid chemicals found in the atmosphere. The particulate data in this report deal with particulate matter in the inhalable size range of 10 microns or smaller in aerodynamic diameter (PM_{10}), or "coarse" particles, and the respirable size range of 2.5 microns or smaller in aerodynamic diameter ($PM_{2.5}$), or "fine" particles. Ten microns is about one-seventh the diameter of human hair.

Unlike the gaseous pollutants which are continuously monitored, PM_{10} may be sampled every sixth day for a 24-hour period. A sampler commonly used in PM_{10} sampling is called a high-volume sampler, which draws a known volume of air through a filter. Suspended PM_{10} in the surrounding air is collected on an eight-inch by 10-inch quartz fiber filter, which is weighed to indicate the quantity of the sample collected on it. By knowing the volume of air that passed through the filter and the weight of particles collected on the filter, the PM_{10} concentration can be calculated. The volume of air that passes through the filter in a 24-hour period is approximately equivalent to the amount of air an average adult breathes in about four months.

Meteorological conditions and other natural occurrences need to be considered when evaluating reductions in emissions for maintenance of the ambient particulate standards. While many PM_{10} emissions, or coarse particles, are from man-made sources (e.g., salt and sand deposited on roads to reduce driving hazards in winter, vehicles traveling on unpaved roads, construction dust, and rock processing), other PM_{10} pollution comes from indirect sources such as motor vehicles that carry particles which are eventually deposited on roads and subsequently agitated and suspended in the air. In addition, strong winds may cause PM_{10} concentrations to be high where the vegetation has been removed by man-made or natural causes. Levels of PM_{10} may also be affected by smoke from large fuel sources, such as forest fires.

Sources of $PM_{2.5}$ emissions, or fine particles, originate from fuel combustion from a variety of sources, such as motor vehicles, power generating stations, other industrial facilities, and residential fireplaces and wood-burning stoves. Fine particles also form from the interaction of chemicals, such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, with other compounds in the air. Levels of $PM_{2.5}$ may be affected by smoke from large fuel sources, such as forest fires, or by dust storms.

Since the national $PM_{2.5}$ network was still being deployed in 2000, three years' data for comparison to the standards may not be available until 2004 for some areas. Some $PM_{2.5}$ data, collected with uncertified monitors, will not be eligible for this comparison. The EPA has $PM_{2.5}$ data collected on federal lands, including national parks and national forests, as well as new $PM_{2.5}$ data for urban areas taken from the national speciation network, which show that monitoring sites in the East typically have higher annual average $PM_{2.5}$ concentrations than in the West, and that Eastern sites have higher proportions of sulfate from coal-fired power generating stations and other industrial boilers than Western sites. Most of the $PM_{2.5}$ particles in both the East and the West consist of sulfates and carbon. Although visibility has improved in the eastern United States, the best days for visibility in the East are still about the same as the worst days in the West (National Air Quality: 2001 Status and Trends, EPA, Sept. 2002).

Particulate matter affects a person's health through the lungs in three ways. The first is the inhalation of toxic particles. Secondly, high levels of particles overload the clearance mechanism of the lungs, lessening their ability to remove toxic particles. Thirdly, particulate matter absorbs harmful gases and enhances the effects of those pollutants on the lungs. When particle concentrations are high, asthma and other respiratory conditions can be aggravated, causing increased coughing and chest discomfort.

Monitoring data for PM_{10} concentrations in Nevada are presented in Appendix 4, Tables 1-4. Monitoring data for $PM_{2.5}$ concentrations in Nevada are presented in Appendix 4, Tables 5-7.

This section of the report discusses by pollutant the air quality status and trends for the monitoring jurisdictions in the state. Graphs are shown in the appendices where there are sufficient data to establish trends.

Natural events may strongly affect air pollution levels. At the Toll monitoring station in the Reno area, the highest PM_{10} concentration of 2001, nearly three times the second-highest concentration, was caused by a smoke plume from a California forest fire in the El Dorado National Forest (Star Fire). At the same site, the second-highest concentration was caused by smoke from a forest fire west of Reno (Martis Fire), starting near Floriston, California, and burning in the Tahoe National Forest and Humboldt-Toiyabe National Forest. The third-highest concentration was caused by transported dust from a dust storm in the Gobi Desert of Mongolia. The Toll site also monitored the highest eight-hour carbon monoxide concentration of the year on the day of the greatest impact of the Star Fire, August 29th. Most of the Reno area monitoring stations also reported the highest or second-highest concentrations of the year for ozone and $PM_{2.5}$ during the impact of the Star Fire.

CARBON MONOXIDE (Appendix 3, Tables 1-6)

The Nevada and national standard for a one-hour period is 35 ppm carbon monoxide. The eight-hour average must not reach 9.05 ppm under the state standard of 9.0 ppm in effect until late 2002, and must not reach 9.5 ppm under the national standard of 9 ppm. At altitudes above 5,000 feet, the state eight-hour standard is reduced to 6.0 ppm, because of the decrease in available oxygen at higher altitudes. The lower level of 6.0 ppm for eight hours provides better protection of human health and welfare at high elevations. The Nevada monitoring sites at Lake Tahoe are the only monitoring sites in the state currently subject to this elevation-related state standard. Following are summaries of the findings for carbon monoxide monitoring in Nevada.

- Washoe County AQMD: Reno, Sparks, Lemmon Valley, Incline Village, Mustang (Appendix 3, Tables 1 & 4)

  The Truckee Meadows hydrographic basin (Reno-Sparks) is designated a moderate (#12.7 ppm) nonattainment area for carbon monoxide, based on eight-hour concentrations. The last exceedance of the carbon monoxide national ambient air quality standards was recorded on December 13, 1991. At the Lemmon Valley, Incline Village, Toll and Mustang monitoring sites, carbon monoxide concentrations were low.

- Nevada BAQP: Carson City, Stateline, Minden (Appendix 3, Tables 2 & 5)

  In Carson City, the East Fifth Street site recorded lower carbon monoxide concentrations than other Carson City sites as a result of this site's greater distance from major traffic corridors. The Roberts House and Ann Street sites in the downtown area are similar with respect to proximity to heavy upwind traffic along North Carson Street (US 395) and residential wood burning. No exceedances were recorded and there was no substantial change in concentrations over the years monitored that cannot be attributed to meteorological conditions. The Long Street site, a few blocks northeast of the Roberts

House site, recorded concentrations close to the concentrations previously recorded at the Roberts House site.

At Stateline, carbon monoxide concentrations monitored along the edge of the Horizon Casino Resort parking lot, downwind from the casino core area, were low, based on available data for the last two decades. Nonetheless, the Lake Tahoe hydrographic basin was designated a nonattainment area (severity of nonattainment not classified) for carbon monoxide by the EPA based on monitoring at South Lake Tahoe, California and on monitoring at Stateline in the 1970's. On June 1, 1998 the California side of the Lake Tahoe hydrographic basin was redesignated to attainment of the carbon monoxide standards. The State of Nevada requested redesignation of the Nevada side of the Lake Tahoe hydrographic basin to attainment of the carbon monoxide standards and submitted a limited maintenance plan to the EPA. As part of this plan and by multiagency cooperative agreement, the California Air Resources Board is conducting carbon monoxide monitoring at Harvey's Resort Hotel, very close to the thoroughfare through the casino complex at Stateline. This is a microscale site, which monitors the highest concentrations. Monitoring at this site has shown low carbon monoxide concentrations, generally less than half the eight-hour standard, from the beginning of monitoring in October 1999 through 2001.

Monitoring in Minden for 1998 and 1999 showed low carbon monoxide concentrations.

- Clark County DAQM: Las Vegas, North Las Vegas, Henderson, Boulder City (Appendix 3, Tables 3 & 6)

  The Las Vegas Valley hydrographic basin is designated a serious nonattainment area for carbon monoxide, based on eight-hour exceedances. The monitoring data generally document improvement in eight-hour carbon monoxide concentrations from 1990 to 1997. A period of four years without an exceedance of the carbon monoxide standards was achieved in the Las Vegas area for the period of 1999 through 2002. The Clark County Department of Air Quality Management is planning to request redesignation to attainment and submit a maintenance plan as soon as the carbon monoxide State Implementation Plan has been approved. At the Henderson and Boulder City monitoring sites, carbon monoxide concentrations were generally low.

OZONE (Appendix 3, Tables 7-12)

The national one-hour ozone standard of 0.12 ppm is attained when, based on a three-year average, the expected number of days per year with a maximum hourly average above the standard is not more than one. The 1997 national eight-hour standard is based on a three-year average of the annual fourth-highest daily maximum eight-hour average ozone concentrations. This three-year average is not to exceed 0.08 ppm. The state ozone standard, a one-hour average concentration not to be exceeded, is 0.12 ppm. The exception is the Lake Tahoe Basin where the state standard is 0.10 ppm.

Washoe County was designated a marginal nonattainment area for ozone until June 5, 1998, when the EPA reclassified Washoe County, which includes the Reno area, as an attainment area for the one-hour ozone standard. This reclassification was in response to the implementation of the new eight-hour ozone standard, which substitutes for the one-hour standard in areas where the one-hour

standard was not exceeded for some time.

Washoe County had not exceeded the national ambient air quality standard for ozone since February 25, 1990. In the summer of 1994, the Washoe County Air Quality Management Division therefore initiated a request by the State of Nevada for EPA redesignation of Washoe County to attainment for ozone. This request was not acted upon by the EPA. Because the new eight-hour ozone standard was challenged in the courts, Washoe County's designation reverted to a marginal nonattainment area for the ozone one-hour standard effective December 20, 2000.

None of the rest of the state is designated nonattainment for the one-hour ozone standard. Although rare exceedances of the standard were recorded, there were no violations of the national standard in the rest of the state, because the expected annual number of exceedance days at any site was not more than one. The state has submitted its eight-hour ozone designation requests to the EPA, and the EPA is in the process of determining nationwide nonattainment designations for the new eight-hour ozone standard.

NITROGEN DIOXIDE (Appendix 3, Tables 13-15)

The standard for nitrogen oxide compounds is related to the levels of nitrogen dioxide (NO_2). The state standard for nitrogen dioxide in effect until late 2002, expressed as the annual arithmetic mean (yearly average), is 0.05 ppm. The national nitrogen dioxide annual standard is 0.053 ppm.

There are no areas in Nevada designated nonattainment areas for nitrogen dioxide. SLAMS monitoring for nitrogen dioxide has been performed in Las Vegas, Stateline, and Carson City, and special purpose monitoring is being done in Reno. Nitrogen dioxide concentrations are generally less than two-thirds of the standard statewide, and outside Las Vegas and Reno are generally not over one-fifth of the standard.

SULFUR DIOXIDE (Appendix 3, Table 16)

Because sulfur dioxide can have long-term as well as short-term effects, three separate standards have been established. The first health-related, or primary, standard is the annual arithmetic mean (yearly average). A yearly safe exposure level of 0.030 ppm has been established for the public. The other health-related standard, a 24-hour (daily) average, is 0.14 ppm. The national secondary standard and state standard require that an exposure for a three-hour period not exceed an average of 0.5 ppm.

The state and local agencies did not operate sulfur dioxide monitoring sites for most of the report period. Monitoring data from industrial sources indicate that the sulfur dioxide standard was not violated during the period under review.

In 1993 the Clark County Department of Air Quality Management began monitoring sulfur dioxide concentrations. The concentrations monitored, which are low in comparison to the standards, are presented in Appendix 3, Table 16.

The central Steptoe Valley in the Ely area was listed by the EPA until 2002 as not meeting primary standards for SO_2. This designation was based on copper smelting activity at McGill that ceased

operation in 1983. The Nevada Bureau of Air Quality Planning initiated a request by the State of Nevada for the EPA to reclassify this area to attainment. The reclassification became effective on April 12, 2002.

PARTICULATE MATTER AS PM_{10} (Appendix 4, Tables 1-4)

Total suspended particulates (TSP) monitoring was abandoned in favor of PM_{10} monitoring by the EPA in 1987 and by the state in 1991. The PM_{10} standards reflect the important health effects of particles in the inhalable size range, while eliminating from consideration the larger suspended particles previously sampled under the TSP standards. The PM_{10} annual standard is 50 $\mu g/m^3$. The 24-hour PM_{10} standard is 150 $\mu g/m^3$. As discussed in the section on state and national ambient air quality standards, the national 24-hour PM_{10} standard is based on the number of expected exceedances from the analysis of three or more years' data. The 1997 PM_{10} standards, which involve calculating concentrations for local conditions instead of standard conditions, and which use 99th percentile concentrations instead of the number of exceedances for comparison to the 24-hour standard, were vacated by the courts (D.C. Circuit, May 14, 1999). Only the original PM_{10} standard is in effect.

The number of exceedances of the 24-hour standard can be affected by the sampling schedule, when samples are not collected on an every-day schedule. For example, the number of exceedances monitored may need to be multiplied by six when sampling is on an every-sixth-day schedule, or be multiplied by three when sampling is on an every-third-day schedule. An every-sixth-day schedule can be identified when the number of samples for a complete calendar year approaches 61; an every-third-day schedule can be identified when the number of samples for a complete calendar year approaches 122. Following are summaries of the findings for PM_{10} monitoring in Nevada:

- Washoe County AQMD: Reno, Sparks, Sun Valley, Incline Village, Mustang (Appendix 4, Table 1)

  The Truckee Meadows hydrographic basin (Reno-Sparks) was designated a serious nonattainment area for PM_{10}, effective February 7, 2001. The EPA announced in November 2000 that it proposed changing this PM_{10} nonattainment designation from "moderate" to "serious," based on a 1999 exceedance of the 24-hour standard and the violations of the PM_{10} standards in the early 1990's. The last exceedance of the 24-hour PM_{10} national ambient air quality standard prior to 1999 was recorded on January 25, 1993. The year 1995 was the first year the Truckee Meadows basin was below the annual PM_{10} standard at all monitoring sites, but the annual standard was exceeded again in 1999. At the sites outside Reno, PM_{10} concentrations were generally low.

- Nevada BAQP: Carson City, Minden, Gardnerville, Stateline, Fernley, Zephyr Cove (Appendix 4, Table 2)

  At these sites, PM_{10} concentrations were well below the annual and 24-hour standards for the purpose of regulatory determinations. Although an exceedance of the 24-hour standard was recorded in Carson City on January 10, 1997, it was discounted from nonattainment determinations under the EPA policy for exceptional events. The EPA classified the exceedance an exceptional event related to silt deposition from a flood.

- Nevada BAQP: Elko, Lovelock, Fallon, McGill, Lehman Caves, Battle Mountain, Pahrump (Appendix 4, Table 3)

  With the exception of monitoring at Pahrump, PM_{10} concentrations were below the annual and 24-hour standards at these sites for the purpose of regulatory determinations. Although exceedances of the 24-hour standard were recorded, they were discounted from nonattainment determinations under the EPA policies for exceptional events and natural events. In Battle Mountain during 1990, one exceedance of the 24-hour standard was excluded from regulatory determinations as an exceptional event due to high winds. Exceedances of the 24-hour standard on August 13, 1996 in McGill and on October 18, 1996, April 23, 1998 and January 11, 2000 in Battle Mountain were excluded as natural events due to high winds. An exceedance of the 24-hour standard in Battle Mountain on August 2, 2000 was flagged by the Bureau of Air Quality Planning as a natural event for wildfire smoke and discounted. PM_{10} data from one site in Lovelock, the high school, were disqualified by the EPA due to siting concerns. There were no other exceedances of the 24-hour or annual standards for the years reported at these locations.

  Monitoring at Pahrump showed four exceedances of the 24-hour PM_{10} standard in 2001. The exceedances are not always related to high winds. Exceedances at Pahrump that are related to high winds cannot be discounted for regulatory purposes under the EPA PM_{10} natural events policy, since the exceedances also relate to man-made surface disturbances where the best available measures to control fugitive dust have not been applied. At this time the Pahrump Valley has not been designated a PM_{10} nonattainment area by the EPA.

- Clark County DAQM: Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite (Appendix 4, Table 4)

  The Las Vegas Valley hydrographic basin is designated a serious nonattainment area for PM_{10} by the EPA based on violations of the 24-hour and annual standards.

PARTICULATE MATTER AS $PM_{2.5}$ (Appendix 4, Tables 5-7)

The annual $PM_{2.5}$ standard is met when the three-year spatial average of the annual averages of the monitors in an area does not exceed 15.0 $\mu g/m^3$. The 24-hour $PM_{2.5}$ standard is met when the three-year average of the annual 98^{th} percentile of the distribution of concentrations at each monitoring site does not exceed 65 $\mu g/m^3$. As discussed under the heading, Particulate Matter as PM_{10}, the number of exceedances can be affected by the sampling schedule when every-day sampling is not done. Attainment classifications based on three years of data collected with EPA-certified federal reference method (FRM) monitors are not yet available. Monitoring in Washoe County commenced in 1999 with FRM monitors. Clark County monitoring sites started operating with uncertified monitors in 1997 and with FRM monitors in 1999.

Monitoring for $PM_{2.5}$ was not required by the EPA for the rest of the state. Screening monitoring was conducted at three locations in the rest of the state beginning in 1998 and 1999 with uncertified monitors, which are not as labor-intensive as FRM monitors. The screening monitoring indicated that $PM_{2.5}$ concentrations were generally low at all three locations: Carson City, Gardnerville, and

Fernley. The highest concentrations of the year at these locations can be expected when winds are relatively calm during the evening, night and early morning hours of the months of December and January. This is indicative of residential wood smoke as the source of the higher concentrations. In addition, an exceedance (100 $\mu g/m^3$) of the 24-hour $PM_{2.5}$ standard was recorded at Incline Village in 2001 as a result of a smoke plume impact from a California forest fire in the El Dorado National Forest, again indicating smoke as the source of highest $PM_{2.5}$ concentrations for rural Nevada.

The data collected with certified FRM monitors suitable for comparison with the standards show no exceedances of the 98^{th} percentile 24-hour or annual standards statewide during the first three years of monitoring.

APPENDIX 1

AMBIENT AIR MONITORING SITE DESCRIPTIONS

- **Reno (ID #32-031-0016 NAMS/SLAMS/SPMS)**

This downtown site in a commercial area was moved in April 1995 a short distance from 250 North Lake Street to One East Plaza Street. The pollutants measured are carbon monoxide, ozone and PM_{10} (NAMS/SLAMS). In addition, special purpose monitoring (SPMS) for NO_2 began in 1996, and $PM_{2.5}$ monitoring (SLAMS) began in 1999 with collocated federal reference method samplers. The monitoring objectives are to determine highest concentrations and population exposure.

- **South Reno (ID #32-031-0020 NAMS/SLAMS)**

Located on Sierra Pacific Power Company property at 4110 De Lucci Lane, this background site is in a transitional environment between open fields and office buildings. The pollutants measured are carbon monoxide, ozone and PM_{10}. The site also monitors for highest concentrations of ozone, which forms downwind of the sources of the photochemical precursors.

- **Galletti (ID #32-031-0022 NAMS/SLAMS)**

This site is in the Department of Motor Vehicles/Department of Transportation yard at 305 Galletti Way in Sparks near the Interstate Highway 80-Interstate Highway 580 (US Highway 395) interchange in a commercial/industrial area. The site monitors carbon monoxide and PM_{10}, and is heavily impacted by automotive emissions from interstate highways. The monitoring objective is to determine highest concentrations of the pollutants monitored.

- **Sparks (ID #32-031-1005 NAMS/SLAMS)**

The Sparks site is located at 750 Fourth Street in a residential area. The pollutants measured are carbon monoxide, ozone and PM_{10}. The monitoring objective is to determine population exposure.

- **Lemmon Valley (ID #32-031-2009 SLAMS)**

Located at the Senior Citizens Center at 325 Patrician Drive, this site is outside the Truckee Meadows designated carbon monoxide and PM_{10} nonattainment basin. It is in a transitional area among residences, parks and open fields. The pollutants monitored are carbon monoxide and ozone. The monitoring objective is to determine population exposure.

- **Sun Valley (ID #32-031-2006 SLAMS)**

This PM_{10} site at 5399 Sun Valley Drive is located in a residential area outside the Truckee Meadows designated carbon monoxide and PM_{10} nonattainment basin. The monitoring objective is to determine population exposure.

- **Incline Village (ID #32-031-2002 SPMS/SLAMS)**

Located at the Washoe County public library at 846 Tahoe Boulevard, this site is outside the Truckee Meadows designated carbon monoxide and PM_{10} nonattainment basin. It is in a residential/commercial neighborhood, where the monitoring objective is population exposure. The Washoe County Air Quality Management Division monitored the pollutants PM_{10}, carbon monoxide and ozone from 1993 through 2001

as special purpose monitoring. At the beginning of 2002, the special purpose monitoring was reclassified to SLAMS monitoring, and the PM_{10} and carbon monoxide monitoring were discontinued in March 2002. By multi-agency cooperative agreement, the California Air Resources Board (CARB) began monitoring nitrogen dioxide (SLAMS) at the site in March 1999 and $PM_{2.5}$ (SLAMS) in May 1999. The CARB discontinued monitoring for $PM_{2.5}$ on January 15, 2002, and for nitrogen dioxide on February 27, 2002. The site is now being operated as an ozone SLAMS site.

- **Mustang (SPMS)**

This remote site is north of the Mustang interchange on Interstate Highway 80 east of Reno. The site monitored carbon monoxide, ozone and PM_{10} downwind of the Reno-Sparks urban area from 1993 until 1998. Carbon monoxide and PM_{10} monitoring were discontinued in March 1998, leaving this an ozone monitoring site.

- **Toll Road (SPMS)**

The Toll Road site is located at 684A State Route 341 (Geiger Grade), one-half mile east of US Highway 395. The site is near the edge of a residential neighborhood and adjacent to an area that may become commercially developed. It is a background site for carbon monoxide and PM_{10} and monitors population exposure to ozone. A nearby school bus depot has not impacted the site with air pollution.

At many of these sites, PM_{10} sampling was discontinued during 1998 after years of monitoring low concentrations. The EPA Region 9 office set a threshold for discontinuing PM_{10} monitoring at 60 percent of the annual standard (30 $\mu g/m^3$) for a three-year average of the annual average concentrations, when exceedances of the 24-hour standard are absent.

- **Carson City - Long Street (ID #32-510-0004 SLAMS/SPMS)**

This site began monitoring for the gaseous pollutants carbon monoxide, ozone and nitrogen dioxide at the beginning of 1997, for PM_{10} in February 1997, and for $PM_{2.5}$ in January 1998. The site is located in the Sierra Pacific Power Company yard at 875 East Long Street to monitor highest concentrations and population exposure downwind of the main traffic corridors and the commercial part of the city. Monitoring for nitrogen dioxide stopped in October 1997, and PM_{10} sampling was discontinued at the end of June 1998.

- **Carson City - East Fifth Street (ID #32-510-0002 SLAMS)**

This site is located at 3300 East Fifth Street near the Carson City Public Works Department maintenance yard in a transition area among open fields, native desert, facilities including a city yard and sewage plant, and residential neighborhoods. The pollutants monitored included carbon monoxide and ozone (through 1989) and PM_{10} (March 1991-February 1997). The monitoring objective was to determine population exposure.

- **Carson City - Bordewich School (ID #32-510-0003 SLAMS)**

Located at 110 Thompson Drive, this site at the Bordewich-Bray Elementary School monitored PM_{10} concentrations from September 1994 through March 1998. The site is in a residential neighborhood. The monitoring objective was to determine population exposure.

- **Carson City - Roberts House (SPMS)**

This was a mobile monitoring station parked during late autumn and winter in the downtown area at the Roberts House Park, a municipal park on the southeast corner of North Carson Street (US Highway 395) and Corbett Street. At a commercial/residential location, the site is three blocks north of the northern intersection of US Highways 50 and 395. The pollutant monitored was carbon monoxide. The monitoring objectives were to determine the highest concentration in the downtown area and to ascertain population exposure. Monitoring commenced in 1989, but was conducted at the Ann Street site between 1990 and 1993. Monitoring was discontinued in March 1996.

- **Carson City - Ann Street (SPMS)**

This was a mobile monitoring station parked during late autumn and winter in the downtown area on East Ann Street between North Carson Street (US Highway 395) and the old Virginia and Truckee Railroad shops. The site is in a commercial location two blocks south of the northern intersection of US Highways 50 and 395. The pollutant measured was carbon monoxide. The monitoring objectives were to determine the highest concentration in the downtown area and to ascertain population exposure. Monitoring was conducted at this site during the three winters between 1990 and 1993.

- **Minden - Dispatch Center (ID #32-005-0005 SLAMS)**

This PM_{10} site is located at 1615 Eighth Street on the roof of a county communications building less than a block from US Highway 395. The site is in a commercial/residential neighborhood and monitored population exposure. PM_{10} sampling commenced at this site in July 1993 and was discontinued at the end of March 1998.

- **Minden - Law Enforcement Center (SPMS)**

The inlet for this carbon monoxide site was on the roof of the Douglas County Law Enforcement Building, less than a block from US Highway 395. Located at 1625 Eighth Street, the site adjoins two large commercial enterprises, a hotel-casino and an electronics manufacturer. The neighborhood is commercial, and the monitoring objective is to determine population exposure. Monitoring started at the beginning of 1998 and stopped at the end of 1999.

- **Gardnerville - Mitch Drive (ID #32-005-0006 SLAMS)**

Located at 931 Mitch Drive at the Gardnerville Ranchos General Improvement District offices, this PM_{10} site on the roof of a storage building is in a residential neighborhood. The site monitored population exposure. PM_{10} monitoring was conducted at this site from July 1994 until February 1996.

- **Gardnerville - Lyell Way (ID #32-005-0007 SLAMS/SPMS)**

This particulate monitoring site at 820 Lyell Way is located in Aspen Park in the Gardnerville Ranchos, a residential neighborhood. The site monitors population exposure. PM_{10} monitoring (SLAMS) commenced at this site in December 1995 and was discontinued at the end of June 1998. Monitoring for $PM_{2.5}$ (SPMS) began in January 1998.

- **Stateline - Horizon Casino Resort (ID #32-005-0004 SLAMS)**

This site is located at Lake Tahoe on the northeast edge of the Horizon Casino Resort parking lot, downwind of the casino core area and downtown US Highway 50. The pollutants measured were carbon monoxide, ozone, nitrogen dioxide and PM_{10}. The monitoring objectives are to determine the impact of the casinos and associated vehicular traffic on the air quality and to ascertain population exposure. Monitoring for ozone commenced in June 1981; for carbon monoxide, in March 1982; for PM_{10}, in September 1988; and for nitrogen dioxide, in January 1990. Nitrogen dioxide monitoring was discontinued in October 1997, and PM_{10} sampling was discontinued at the end of March 1998. Monitoring for ozone and carbon monoxide was discontinued in June 1999, and the site was closed in favor of new monitoring sites at Harvey's Resort Hotel and at Cave Rock.

- **Stateline - Harvey's Resort Hotel (ID #32-005-0009 SLAMS)**

This is a "microscale" monitoring site for carbon monoxide in the core of the Stateline casino hotel area at Lake Tahoe. The site is designed to monitor the highest carbon monoxide concentrations at Lake Tahoe, and is taken to be representative of both the California and Nevada sides of the south shore casino district. The monitoring is conducted by the California Air Resources Board by multi-agency cooperative agreement. Monitoring began in October 1999.

- **Zephyr Cove - Cave Rock (ID #32-005-0008 SLAMS)**

This site is located on state park property at the Cave Rock boat launch facility on the east shore of Lake Tahoe. The pollutants monitored are ozone and TSP, and PM_{10} and $PM_{2.5}$ were monitored until January 2002. The site monitors ozone transport from upwind California urban areas. The station is operated by the California Air Resources Board under a multi-agency cooperative agreement. Ozone monitoring commenced in July 1999, and PM_{10} and $PM_{2.5}$ monitoring started at the end of 1999. PM_{10} monitoring was discontinued on January 22, 2002, and $PM_{2.5}$ monitoring was discontinued on January 15, 2002.

- **Fernley Intermediate School (SPMS)**

Particulate monitoring is done at the intermediate school at 320 Hardie Lane. This is an area of residential and agricultural use and recent industrial growth. Sampling for PM_{10} at this site commenced in May 1995 to determine agricultural and industrial source impacts and population exposure. PM_{10} sampling was discontinued in November 1998. Monitoring for $PM_{2.5}$ began in June 1999.

- **Fernley Volunteer Fire Department (SPMS)**

An ozone monitor was installed at the North Lyon County Fire Protection District station at 163 East Main Street in September 1997. This site is generally downwind from Reno at the end of a canyon corridor that includes large industrial sources. The monitoring objectives are to determine highest concentrations and population exposure.

- **Fallon (ID #32-001-0002 SLAMS)**

This PM_{10} and ozone monitoring site at 280 South Russell Street is at the West End Elementary School in a residential neighborhood that may at times be affected by agricultural operations surrounding the town. The monitoring objective is to determine population exposure. PM_{10} sampling commenced at this site in May 1993 and was discontinued at the end of June 1998. Monitoring for ozone began in October 1999 as an ozone transport site downwind of Reno and Fernley.

- **Lovelock - Post Office (ID #32-027-0002 SPMS/SLAMS)**

Located at the post office at the corner of Main Street and Dartmouth Avenue in a central commercial area, this PM_{10} site was established in July 1991 for the special purpose of monitoring the effects of agricultural burning on the air quality of Lovelock. As a SLAMS site, it also served to determine population exposure near the commercial area of town. The site was discontinued at the end of June 1997.

- **Lovelock - High School (ID #32-027-0003 SPMS/SLAMS)**

This PM_{10} site at the high school at 1215 Franklin Avenue was originally selected for the special purpose of monitoring the effects of feedlot operations on the air quality. PM_{10} sampling commenced at this site in April 1993, but the data were subsequently disqualified by the EPA due to siting concerns.

- **Battle Mountain - Police/Fire Station (ID #32-015-0002 SLAMS)**

Located at 25 East Second Street, this PM_{10} site is at the police/fire station near commercial, industrial and residential areas. It is less than one block from the intersection of the two most heavily traveled streets, exclusive of the interstate highway. The monitoring objective was to determine population exposure. PM_{10} sampling commenced at this site in June 1985. Due to siting concerns, this site was discontinued effective the end of September 1998 and was relocated to the junior high school, which is near the interstate highway.

- **Battle Mountain - Junior High School (ID #32-015-0004 SLAMS)**

This site utilizes a TEOM continuous PM_{10} monitor. Located near 625 Weaver Avenue, the monitor is on the announcer's tower at the athletic field of the junior high school. The site is at the edge of a residential neighborhood, near the intersection of Interstate Highway 80 and Nevada Highway 305. The monitoring objective is to determine population exposure. Monitoring commenced on August 20 1998.

- **Elko (ID #32-007-0004 SLAMS)**

This continuous PM_{10} monitoring site is located on the roof of the state offices at 850 Elm Street in a predominantly residential area. The monitoring objective is to determine population exposure. PM_{10} sampling commenced at this site in November 1992. The previous location for this sampler was the Fire Station at 723 Railroad Street (ID #32-007-0003) in a commercial area. It was moved to the state office building at 850 Elm Street in November 1992. The manual PM_{10} sampler was replaced with a TEOM continuous PM_{10} monitor at the end of 1998.

- **McGill (ID #32-033-0002 SLAMS)**

Located at the elementary school on the corner of Second and F Streets, this PM_{10} site is in a residential area near industrial facilities of a closed mining operation. The town is potentially subject to blowing dust from mine tailings. The monitoring objectives were to monitor the residual impact of the former mining operation and to ascertain population exposure. PM_{10} sampling commenced at this site in June 1993 and was discontinued at the end of March 1998.

- **Lehman Caves (ID #32-033-0007 / 32-033-0008 SLAMS)**

Located at the Lehman Caves in the Great Basin National Park near Baker, this PM_{10} background site was established in June 1993 to measure the air quality in one of the remotest and least polluted areas of the state. In May 1995 the site was moved from the roof of a maintenance building (320330007) to an IMPROVE site (320330008) a few hundred meters to the northeast, where the National Park Service monitors for several pollutants. PM_{10} monitoring was discontinued at the end of June 1997.

- **Pahrump (SPMS)**

This site is on the roof of a dressing room for the municipal swimming pool and recreation complex located behind the county offices at 250 North Highway 160 in a commercial neighborhood. Continuous PM_{10} monitoring with a beta attenuation monitor commenced in January 2001. The monitoring objective is to determine highest concentrations.

- **City Center (ID #32-003-1001 NAMS)**

This PM_{10} site is located at 215 East Bonanza Road, Las Vegas, on the roof of a Nevada state government building in a commercial area. This site was active from 1987 until March 1995. The monitoring objectives were to determine highest concentrations and population exposure.

- **City Center Gaseous (ID #32-003-0016 NAMS/SLAMS/SPMS)**

At 559 North Seventh Street, Las Vegas, this site is located in a commercial area. The pollutants measured are carbon monoxide and ozone (NAMS), nitrogen dioxide (SLAMS), and PM_{10} (NAMS/SPMS). This site has been active since 1987. Monitoring for nitrogen dioxide was discontinued in June 1994. Continuous monitoring for PM_{10} commenced at the beginning of 1995. The monitoring objectives are to determine highest concentrations and population exposure.

- **East Charleston (ID #32-003-0557 NAMS/SLAMS)**

Operated through March 1997, this site is located in a commercial/residential area at 2850 East Charleston Boulevard, Las Vegas. The pollutants measured were carbon monoxide (NAMS), sulfur dioxide and nitrogen dioxide (SLAMS). Carbon monoxide monitoring commenced in 1975 and nitrogen dioxide monitoring began in 1983. The monitoring objectives were to determine highest concentrations and population exposure.

- **Winterwood (ID #32-003-0538 NAMS/SLAMS/SPMS)**

This population-oriented site at 5483 Clubhouse Drive, Las Vegas is in a residential area adjacent to the Winterwood golf course. The pollutants measured are ozone (NAMS) and carbon monoxide (SPMS upgraded to SLAMS). Ozone monitoring began in 1979, while carbon monoxide monitoring commenced in 1989.

- **Bemis/Craig Road (ID #32-003-0020 NAMS/SLAMS/SPMS)**

This site is located at 4701 Mitchell Street, North Las Vegas, in an industrial area, and is considered a downwind site for ozone during the summer. The pollutants ozone (NAMS/SLAMS) and ammonia (SPMS) have been monitored since the site was activated in 1991. Carbon monoxide (SLAMS) monitoring commenced in July 1995. In 1997 monitoring began for PM_{10} (SLAMS) and continuous $PM_{2.5}$ (SPMS). The monitoring objective is to determine population exposure.

- **Wengert (ID #32-003-0017 NAMS)**

Located at 2001 Winterwood Boulevard, Las Vegas, this site is on an elementary school roof in a residential area. The pollutant measured was PM_{10}. The site was activated in 1987 and discontinued sampling at the end of March 1995. The monitoring objective was to determine population exposure.

- **Health District (ID #32-003-0021 SLAMS/SPMS)**

This site is located at 625 Shadow Lane, Las Vegas, in a residential area. The pollutants measured were carbon monoxide and ozone (upgraded from SPMS to SLAMS), and nitrogen dioxide was measured.

Monitoring for carbon monoxide and ozone commenced in 1989, while nitrogen dioxide monitoring began in 1990. Monitoring for nitrogen dioxide was discontinued. The monitoring objective was to determine population exposure. The station was closed on October 24, 2001.

- **Maycliff/East Sahara (ID #32-003-0539 NAMS/SLAMS/SPMS)**

Located at 4001 East Sahara Avenue, Las Vegas, this site is in a residential area. The pollutants measured are sulfur dioxide (NAMS/SLAMS), carbon monoxide (SLAMS/SPMS), nitrogen dioxide (SLAMS), and continuously monitored PM_{10} (NAMS/SLAMS) and $PM_{2.5}$ (SPMS). The site has been active since 1989. Continuous PM_{10} monitoring commenced at the beginning of 1995, and continuous $PM_{2.5}$ monitoring began in 1997. The monitoring objective is to determine highest concentrations of nitrogen dioxide and population exposure to the other pollutants.

- **Flamingo (ID #32-003-1022 NAMS/SLAMS/SPMS)**

This site was moved in 1995 from 366 East Flamingo Road, Las Vegas, where ozone was monitored in 1994 and 1995, to 201 East Flamingo Road and then to 210 East Flamingo Road, in a commercial area. The pollutants measured are carbon monoxide (SPMS/SLAMS) and continuously monitored PM_{10} (NAMS/SLAMS). The site was activated for SPMS carbon monoxide monitoring in December 1991 and reclassified as a SLAMS site for carbon monoxide in July 1995. Continuous monitoring of PM_{10} commenced at the beginning of 1995. The monitoring objective is to determine population exposure.

- **McDaniel Post Office (ID #32-003-2001 NAMS)**

This site was moved from the North Las Vegas Fire Department to the roof of the nearby McDaniel Post Office at 1414 East Lake Mead Boulevard, North Las Vegas. The site is in a commercial area affected by traffic. The pollutant measured was PM_{10}. Monitoring in this area commenced in 1985 for PM_{10}. The monitoring objectives was to determine highest concentrations. The PM_{10} sampler was relocated to the nearby J.D. Smith Middle School in the fall of 1998. This sampler is the only high-volume PM_{10} sampler remaining in the network, which utilizes continuous PM_{10} monitors.

- **McDaniel (ID #32-003-2002 SPMS)**

This PM_{10} site, located at 1600 East Lake Mead Boulevard, supplemented the McDaniel Post Office site in monitoring highest concentrations in a commercial area affected by traffic. The McDaniel site used a continuous PM_{10} monitor, while the McDaniel Post Office site utilized the only remaining filter-based high-volume PM_{10} sampler in the district network. The site started monitoring in 1994. The monitor was relocated to the nearby J.D. Smith Middle School in the fall of 1998. Monitoring for $PM_{2.5}$ was done in 1997 and 1998.

- **J.D. Smith Middle School (ID #32-003-2002 SLAMS/SPMS)**

Located at 1301B Tonopah in North Las Vegas, this site is a replacement for the McDaniel site and the McDaniel Post Office site. Monitors from both sites and additional monitors were moved to the J.D. Smith Middle School in the fall of 1998. The school is in a residential area, where the monitoring objectives are to determine highest concentrations of PM_{10} and population exposure to FRM $PM_{2.5}$ (SLAMS) and carbon monoxide, nitrogen dioxide, ozone and continuous $PM_{2.5}$ (SPMS). The site was reclassified as a SLAMS site for all pollutants monitored except continuous $PM_{2.5}$ (SPMS).

- **Burkholder (Basic) Junior High School (ID #32-003-0005 SLAMS)**

This site in Henderson is located at 335 Van Wagonen Street on the roof of a service building at the junior high school. It is 150 feet from parking lots and was population-oriented. The pollutant measured was PM_{10}. This site was active from 1987 until the end of 1994.

- **Powerline/Henderson/Southeast Valley (ID #32-003-0007 NAMS/SLAMS/SPMS)**

Located in a high tension power corridor at 545 West Lake Mead Drive, this site is in an industrial section of Henderson. The pollutants measured are ozone (NAMS/SLAMS), carbon monoxide and PM_{10} (SPMS upgraded to SLAMS), and ammonia (SPMS). Ozone and ammonia monitoring commenced in 1980, and carbon monoxide monitoring began in 1988. Monitoring is conducted to determine population exposure.

- **Frias (ID #32-003-0019 SLAMS)**

Located at 3950 West Frias Avenue, at the intersection of Frias Avenue and Schuster Street in south Las Vegas, this is a background site in a rural environment. The site used a low volume dichotomous sampler to measure PM_{10}. The site was active from 1987 until the end of 1994.

- **Diskin (ID #32-003-0042 SPMS)**

This PM_{10} site is located at 4220 Ravenwood Drive, Las Vegas, at the Diskin Elementary School. The site is in a residential neighborhood being monitored for population exposure to PM_{10}. Sampling data are available for 1994.

- **McMillan (ID #32-003-0070 SPMS)**

This PM_{10} site is located at 7000 Walt Lott Drive, Las Vegas, at the McMillan Elementary School. The site is in a residential neighborhood being monitored for population exposure to PM_{10}. Sampling data are available for 1994.

- **Pittman (ID #32-003-0107 SLAMS/SPMS)**

Located at 1137 North Boulder Highway, Henderson, this site is in a commercial/industrial area. The site is downwind from an industrial area and monitored population exposure to PM_{10} (SLAMS) and carbon monoxide (SPMS/SLAMS). Continuous PM_{10} monitoring commenced at the beginning of 1995 and carbon monoxide monitoring started in July 1995. Monitoring was discontinued February 28, 2002.

- **Walter Johnson (ID #32-003-0071 SLAMS/SPMS)**

This monitoring site is at the Walter Johnson Middle School at 7701 Ducharme Avenue. The site is in a residential neighborhood being monitored for population exposure to PM_{10}. Monitoring commenced in March 1995 for PM_{10} (SLAMS) and in August 1998 for ozone (SPMS/SLAMS).

- **Boulder City (ID #32-003-0601 SPMS/SLAMS)**

Located at 1005 Industrial Road, Boulder City, this site in a commercial area monitors population exposure to carbon monoxide, PM_{10} and $PM_{2.5}$, ozone, nitrogen dioxide and sulfur dioxide. Monitoring data are available starting in 1995 for carbon monoxide; in 1997 for nitrogen dioxide, PM_{10} and continuous $PM_{2.5}$; and in 1998 for ozone and sulfur dioxide. The site was reclassified as a SLAMS site for all pollutants monitored except continuous $PM_{2.5}$ (SPMS).

- **Jean (ID #32-003-1019 SLAMS/SPMS)**

This monitoring site is located at 1965 State Highway 161, Jean, Nevada, well south of Las Vegas. The site monitors regional transport of PM_{10}, as well as transport of ozone, nitrogen dioxide, PM_{10} and $PM_{2.5}$ from the Los Angeles urban area. Continuous PM_{10} monitoring (SLAMS) commenced in October 1994, federal reference method $PM_{2.5}$ sampling (SLAMS) early in 1997, ozone monitoring (SPMS) in July 1998, and nitrogen dioxide monitoring (SPMS) in September 1998. The site was reclassified as a SLAMS site for all pollutants monitored.

- **Sunrise Acres (ID #32-003-0561 NAMS/SLAMS)**

This site is at an elementary school in a residential nieghborhood affected by relatively high carbon monoxide concentrations. The address is 2501 South Sunrise Avenue. The objective for carbon monoxide monitoring at this site is to determine highest concentrations. Monitoring at the site started in September 1996.

- **South Las Vegas Boulevard (ID #32-003-1023 NAMS/SLAMS)**

This is a carbon monoxide monitoring site at a casino in a main commercial area. The address is 3799 South Las Vegas Boulevard. It is a microscale site monitoring for population exposure. Monitoring began in June 1996.

- **Crestwood (ID #32-003-0562 NAMS/SLAMS/SPMS)**

This site is at Crestwood Elementary School in a residential neighborhood at 1300 Pauline Way. The objective for carbon monoxide monitoring (NAMS/SLAMS) at this site was to determine population exposure. The site also provided special purpose monitoring (SPMS) for continuous $PM_{2.5}$. Monitoring started in August 1996 for carbon monoxide and PM_{10}, and in 1997 for $PM_{2.5}$. Monitoring was discontinued on February 28, 2002.

- **Green Valley (ID #32-003-0298 SPMS/SLAMS)**

This is a carbon monoxide and particulate monitoring site in a park adjacent to a residential neighborhood and near a sand and gravel operation. The site, located at 248 Arroyo Grande, Henderson, monitors population exposure. Carbon monoxide monitoring (SPMS/SLAMS) commenced in 1995, PM_{10} monitoring (SPMS/SLAMS) began in 1996, and federal reference method (SLAMS) and continuous (SPMS) $PM_{2.5}$ monitoring started at the beginning of 1997.

- **Paul Meyer Park (ID #32-003-0043 SPMS/SLAMS)**

Located at 4525 New Forest Drive, this site in a residential neighborhood started monitoring PM_{10} in 1994, carbon monoxide in 1995, and ozone in 1998 to determine population exposure. The site was reclassified as a SLAMS site for all pollutants monitored.

- **Lone Mountain (ID #32-003-0072 SPMS/SLAMS)**

This site at a water district pumping station at 3525 North Valadez Street, on the northwest side of Las Vegas, started monitoring ozone and PM_{10} in 1997 in a residential neighborhood to determine population exposure.

- **Apex (ID #32-003-0022 SPMS/SLAMS)**

This site at 12101 U.S. Highway 93, near Interstate Highway 15, is an urban to regional scale site that started monitoring source impacts on concentrations of ozone, nitrogen dioxide, sulfur dioxide and PM_{10} (SPMS) in 1997, and federal reference method $PM_{2.5}$ (SLAMS) in 1998. The site was reclassified as a SLAMS site for all pollutants monitored.

- **Microscale (ID #32-003-0558 SPMS/SLAMS)**

Located near the East Charleston site, this PM_{10} and federal reference method $PM_{2.5}$ site is in a commercial/residential area at 2801 East Charleston Boulevard, Las Vegas. The monitoring objectives are to determine highest concentrations and population exposure. Monitoring data are available starting 1997.

- **Palo Verde (ID #32-003-0073 SPMS/SLAMS)**

This site is located in a residential neighborhood at 333 Pavilion Center Drive on the western edge of Las Vegas. The site monitors ozone, nitrogen dioxide, PM_{10} and continuous $PM_{2.5}$ concentrations. The monitoring objective is to determine population exposure. SLAMS monitoring began in June 1998 for the pollutants other than $PM_{2.5}$ (SPMS), which started monitoring in September 1998.

- **Freedom Park (ID #32-003-0563 SPMS)**

This site is located behind a city building at 650 North Mojave Road, Las Vegas in a residential neighborhood with a nearby park and sewer treatment facility. The site monitors carbon monoxide and nitrogen dioxide. The monitoring objective is to determine population exposure. Monitoring began in October 2000.

- **Joe Neal (ID #32-003-0075 SPMS/SLAMS)**

Located at 6651 West Azure Drive, Las Vegas, this site is located at the Joe Neal Elementary School in a residential neighborhood. The site monitors for the highest ozone concentrations (SLAMS) and to determine population exposure to PM_{10} (SPMS). Monitoring began in July 2000.

- **Searchlight (ID #32-003-0078 SPMS)**

This site is located in a rural area at 103 U.S. Highway 95 in the town of Searchlight, south of Las Vegas, and is subject to transport of pollutants from a power plant and from the Los Angeles urban area. The site monitors ozone, nitrogen dioxide, and sulfur dioxide. The monitoring objectives are to identify transport of nitrogen dioxide and sulfur dioxide and to determine population exposure to ozone. Monitoring began in July 2000.

- **Mesquite (ID #32-003-0023 SPMS)**

This site is located in an area of residential, commercial, and farming uses at 465 East Old Mill Road in the town of Mesquite, northeast of Las Vegas near the Arizona Border. The site monitors ozone, nitrogen dioxide, and PM_{10} to determine population exposure. Monitoring started in October 2001. Because of blowing dust from an adjacent vacant lot, the monitoring site is expected to be relocated westward to the old site of the Virgin Valley Elementary School.

APPENDIX 2

STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

A P P E N D I X 2

L I S T O F T A B L E S

Table 1
Ambient Air Quality Standards

NEVADA STANDARDS[A]				NATIONAL STANDARDS[B]		
POLLUTANT	AVERAGING TIME	CONCENTRATION	METHOD[D]	PRIMARY[C, E]	SECONDARY[C, F]	METHOD [D]
Ozone	1 hour	235 Fg/m^3 (0.12 ppm)	Chemiluminescence	1-hour = 0.12 ppm (235 Fg/m^3)	Same as primary	Chemiluminescence
Ozone-Lake Tahoe Basin, #90	1 hour	195 Fg/m^3 (0.10 ppm)		8-hour = 0.08 ppm		
Carbon monoxide less than 5,000' above mean sea level	8 hours	10,000 Fg/m^3 (9.0 ppm)	Nondispersive infrared photometry	9 ppm (10 mg/m^3)	None	Nondispersive infrared photometry
At or greater than 5,000' above mean sea level		6,670 Fg/m^3 (6.0 ppm)				
Carbon monoxide at any elevation	1 hour	40,000 Fg/m^3 (35 ppm)		35 ppm (40 mg/m^3)		
Nitrogen dioxide	Annual arithmetic mean	100 Fg/m^3 (0.05 ppm)	Gas phase chemiluminescence	0.053 ppm (100 Fg/m^3)	Same as primary	Gas phase chemiluminescence
Sulfur dioxide	Annual arithmetic mean	80 Fg/m^3 (0.03 ppm)	Ultraviolet fluorescence	0.030 ppm	None	Pararosaniline method
	24 hours	365 Fg/m^3 (0.14 ppm)		0.14 ppm		
	3 hours	1,300 Fg/m^3 (0.5 ppm)		None	0.5 ppm	
Particulate matter as PM_{10}	Annual arithmetic mean	50 Fg/m^3	High volume PM_{10} sampling	50 Fg/m^3	Same as primary	High volume PM_{10} sampling
	24 hours	150 Fg/m^3		150 Fg/m^3		
Particulate matter as $PM_{2.5}$	Annual arithmetic mean	--	--	15.0 Fg/m^3	Same as primary	Low volume $PM_{2.5}$ sampling
	24 hours			65 Fg/m^3		
Lead (Pb)	Quarterly arithmetic mean	1.5 Fg/m^3	High volume sampling, acid extraction and atomic absorption spectrometry	1.5 Fg/m^3	Same as primary	High volume sampling, acid extraction and atomic absorption spectrometry
Visibility	Observation	In sufficient amount to reduce the prevailing visibility[G] to less than 30 miles when humidity is less than 70%	Observer or camera	--	--	--
Hydrogen sulfide	1 hour	112 Fg/m^3 [H] (0.08 ppm)	Cadmium hydroxide stractan method	--	--	--

Notes for Table 1 - Ambient Air Quality Standards

Note A: These standards must not be exceeded in areas where the general public has access.

Note B: These standards, other than for ozone, particulate matter, and those based on annual averages, must not be exceeded more than once per year. The one-hour ozone standard is attained when the expected number of days per calendar year with a maximum hourly average concentration above the standard is equal to or less than one. The eight-hour ozone standard is attained when a three-year average of the annual fourth-highest daily maximum eight-hour average ozone concentrations is not greater than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above the standard, after rounding to the nearest 10 Fg/m^3, is equal to or less than one. The expected number of days per calendar year is generally based on an average of the number of exceedances per year for the last three years.

Note C: Where applicable, concentration is expressed first in units in which it was adopted. All measurements of air quality that are expressed as mass per unit volume, such as micrograms per cubic meter, other than for $PM_{2.5}$, must be corrected to a reference temperature of 25EC and a reference pressure of 760 mm of mercury (1,013.2 millibars). In this table, "ppm" refers to parts per million by volume, or micromoles of regulated air pollutant per mole of gas.

Note D: Any reference method specified in accordance with 40 C.F.R. Part 50 or any reference method or equivalent method designated in accordance with 40 C.F.R. Part 53 may be substituted.

Note E: National primary standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

Note F: National secondary standards are the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a regulated air pollutant.

Note G: For the purposes of this section, prevailing visibility means the greatest visibility which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Note H: The ambient air quality standard for hydrogen sulfide does not include naturally occurring background concentrations.

APPENDIX 3

AMBIENT AIR QUALITY DATA

GASEOUS POLLUTANTS

APPENDIX 3

LIST OF TABLES

TABLE 1

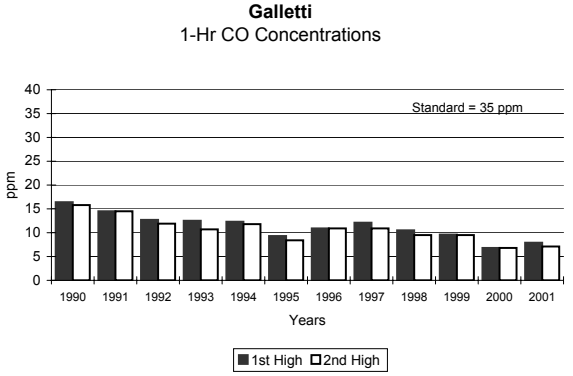
One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

Reno, Sparks, Lemmon Valley, Incline Village, Mustang

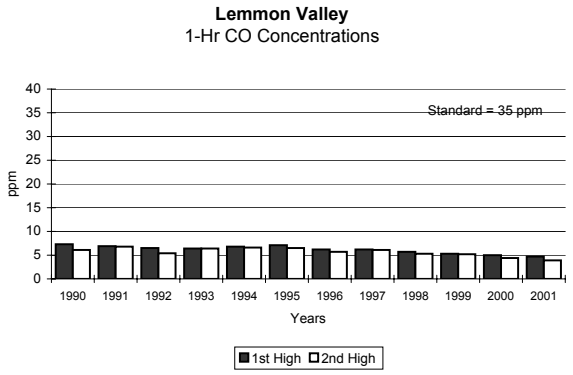
ID #32-031-0022 (NAMS/SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	16.4	15.8	0
1991	14.5	14.5	0
1992	12.7	11.9	0
1993	12.5	10.7	0
1994	12.3	11.8	0
1995	9.3	8.4	0
1996	10.9	10.9	0
1997	12.1	10.9	0
1998	10.5	9.5	0
1999	9.6	9.5	0
2000	6.8	6.8	0
2001	7.9	7.1	0



ID #32-031-2009 (SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	7.3	6.1	0
1991	6.9	6.8	0
1992	6.5	5.4	0
1993	6.4	6.4	0
1994	6.8	6.6	0
1995	7.1	6.5	0
1996	6.2	5.7	0
1997	6.2	6.1	0
1998	5.7	5.3	0
1999	5.3	5.2	0
2000	5.0	4.4	0
2001	4.7	3.9	0



ID #32-031-0016 (NAMS/SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	14.1	13.2	0
1991	13.6	11.9	0
1992	12.4	10.3	0
1993	8.2	7.9	0
1994	11.8	10.7	0
1995	8.6	7.8	0
1996	10.5	8.7	0
1997	8.1	8.0	0
1998	7.9	7.2	0
1999	9.1	9.0	0
2000	5.5	5.2	0
2001	5.9	5.7	0

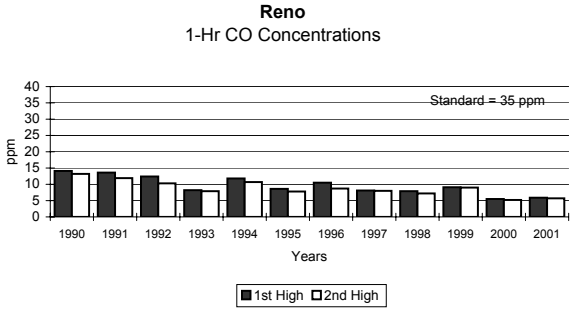


TABLE 1 Continued

One-Hour Carbon Monoxide Concentrations

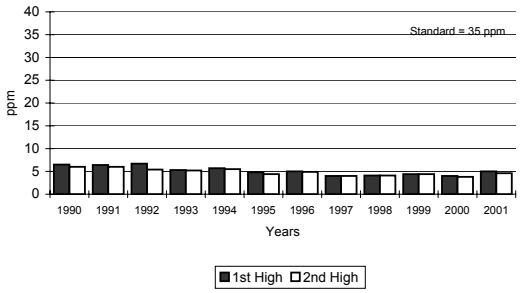
One-Hour Standard: 35 ppm

Reno, Sparks, Lemmon Valley, Incline Village, Mustang

ID #32-031-0020 (NAMS/SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	6.5	6.0	0
1991	6.4	6.0	0
1992	6.7	5.4	0
1993	5.3	5.2	0
1994	5.7	5.5	0
1995	4.8	4.4	0
1996	5.0	4.9	0
1997	4.0	4.0	0
1998	4.1	4.1	0
1999	4.4	4.4	0
2000	4.0	3.8	0
2001	5.0	4.6	0

South Reno
1-Hr CO Concentrations

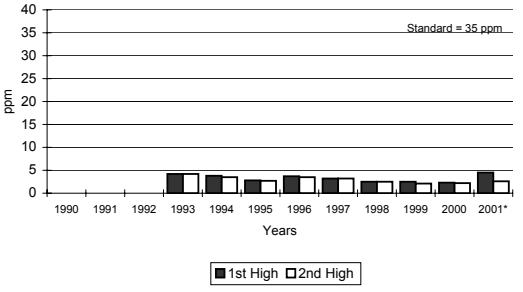


ID #32-031-2002 (SPMS/SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	4.2	4.2	0
1994	3.8	3.5	0
1995	2.8	2.7	0
1996	3.7	3.5	0
1997	3.2	3.2	0
1998	2.5	2.5	0
1999	2.5	2.1	0
2000	2.3	2.2	0
2001*	4.5	2.6	0

**2nd-high affected by Star Fire, El Dorado National Forest, 8/28/01*

Incline Village
1-Hr CO Concentrations



ID #32-031-1005 (NAMS/SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1989	14.8	14.6	0
1990	19.7	14.4	0
1991	14.1	12.5	0
1992	12.9	12.9	0
1993	10.5	9.4	0
1994	13.3	11.6	0
1995	11.1	9.9	0
1996	9.5	9.3	0
1997	10.7	9.3	0
1998	7.8	7.5	0
1999	10.0	8.1	0
2000	7.6	7.2	0
2001	8.2	7.0	0

Sparks
1-Hr CO Concentrations

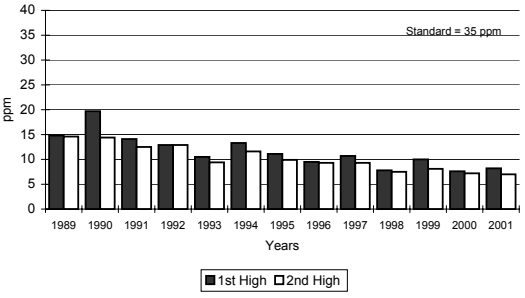


TABLE 1 Continued

One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

Reno, Sparks, Lemmon Valley, Incline Village, Mustang

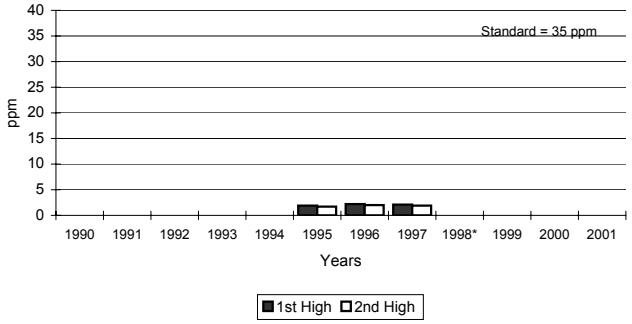
(SPMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	1.9	1.7	0
1996	2.2	2.0	0
1997	2.1	1.9	0
1998*	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Discontinued monitoring March 5, 1998.*

Mustang

1-Hr CO Concentrations



(SPMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	2.8	2.7	0
1997	3.2	3.1	0
1998	3.8	3.5	0
1999	4.1	3.2	0
2000	3.1	2.3	0
2001	2.5	2.1	0

Toll (Geiger Grade)

1-Hr CO Concentrations

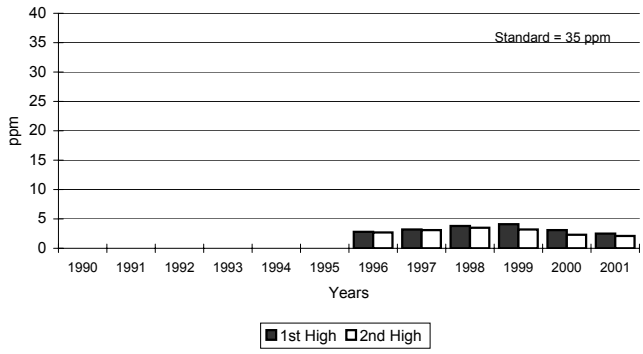


TABLE 2

One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

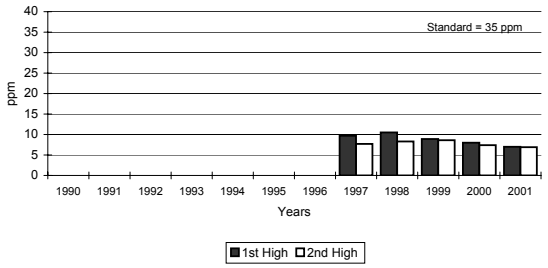
Carson City, Stateline, Minden

ID #32-510-0004 (SLAMS/SPMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	9.7	7.7	0
1998	10.5	8.3	0
1999	8.9	8.6	0
2000	8.0	7.4	0
2001	7.0	6.9	0

Carson City - Long Street

1-Hr CO Concentrations



ID #32-510-0002 (SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1989	5.1	5.1	0

Carson City - E. Fifth Street

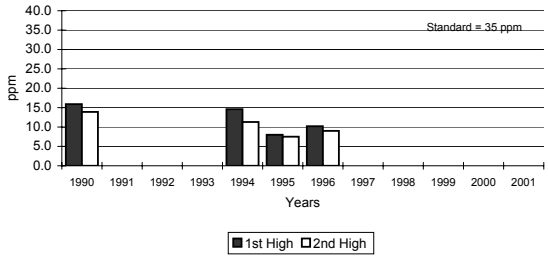
(SPMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	15.9	13.9	0
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	14.6	11.3	0
1995	8.0	7.5	0
1996	10.2	9.0	0
1997	*no data*	*no data*	*no data*
1998	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Fall/winter only*

Carson City - Roberts House*

1-Hr CO Concentrations



(SPMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	10.3	9.2	0
1992	9.8	9.6	0
1993	12.1	11.5	0
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	*no data*	*no data*	*no data*
1998	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Fall/winter only*

Carson City - Ann Street*

1-Hr CO Concentrations

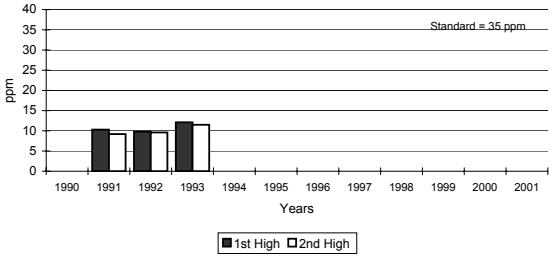


TABLE 2 Continued

One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

Carson City, Stateline, Minden

ID #32-005-0004 (SLAMS)

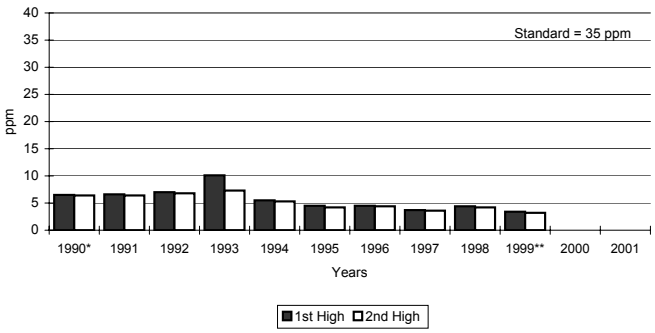
YEAR	1st High	2nd High	1-Hour Exceedances
1990*	6.5	6.4	0
1991	6.6	6.4	0
1992	7.0	6.8	0
1993	10.1	7.3	0
1994	5.5	5.3	0
1995	4.5	4.2	0
1996	4.5	4.4	0
1997	3.7	3.6	0
1998	4.4	4.2	0
1999**	3.4	3.2	0
2000	*no data*	*no data*	0
2001	*no data*	*no data*	0

** Power disruptions due to construction & vandalism: incomplete yr.*

***Data for January-June: discontinued monitoring*

Stateline - Horizon Casino Resort

1-Hr CO Concentrations



(SPMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1998	4.0	3.1	0
1999*	2.3	2.0	0

**Discontinued monitoring at the end of 1999*

Minden - Law Enforcement Center

ID #32-005-0009 (SLAMS)

YEAR	1st High	2nd High	1-Hour Exceedances
1999*	10.3	9.5	0
2000	13.0	12.1	0
2001	7.6	7.5	0

**New site: data for October-December*

Stateline - Harvey's Resort Hotel

TABLE 3

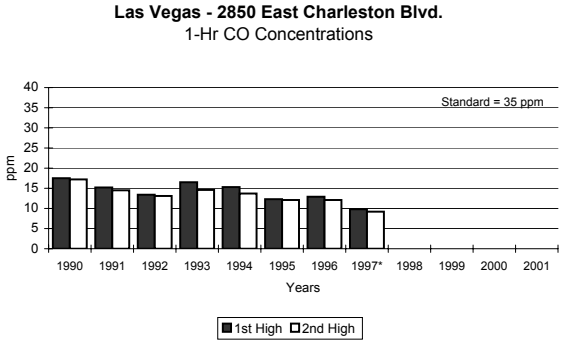
One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0557 (NAMS/SLAMS) East Charleston

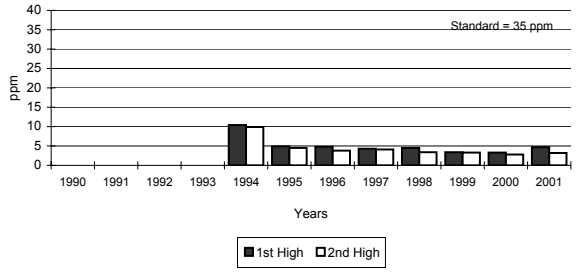
YEAR	1st High	2nd High	1-Hour Exceedances
1990	17.5	17.2	0
1991	15.2	14.5	0
1992	13.4	13.1	0
1993	16.5	14.6	0
1994	15.3	13.7	0
1995	12.3	12.1	0
1996	12.9	12.1	0
1997*	9.8	9.2	0
1998	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*



** Data for January-March. This site replaced by Sunrise Acres site.*

ID #32-003-0007 (NAMS/SLAMS/SPMS) Powerline

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	10.4	9.9	0
1995	4.9	4.5	0
1996	4.8	3.8	0
1997	4.3	4.1	0
1998	4.5	3.4	0
1999	3.4	3.3	0
2000	3.3	2.8	0
2001	4.7	3.2	0



ID #32-003-0538 (NAMS/SLAMS/SPMS) Winterwood

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	10.0	9.1	0
1995	8.8	8.3	0
1996	8.6	8.5	0
1997	6.6	6.4	0
1998	7.2	7.2	0
1999	8.8	8.3	0
2000	7.0	6.0	0
2001	5.5	5.2	0

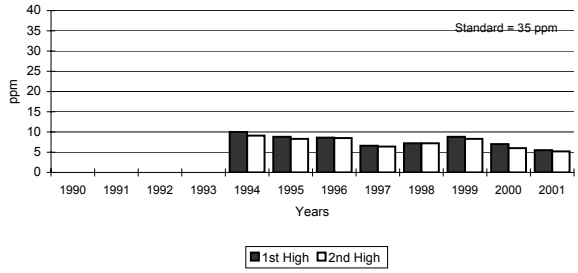


TABLE 3 Continued

One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

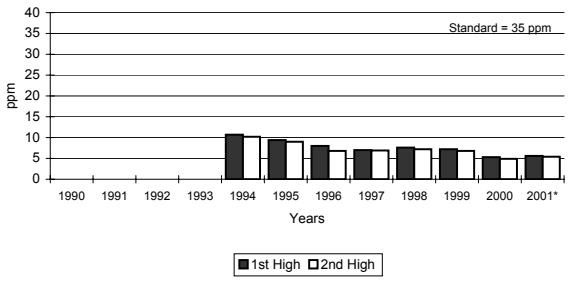
Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0021 (SPMS/SLAMS) Health District

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	10.7	10.2	0
1995	9.4	9.0	0
1996	8.0	6.8	0
1997	7.0	6.9	0
1998	7.6	7.2	0
1999	7.2	6.8	0
2000	5.3	4.9	0
2001*	5.6	5.4	0

** Closed site October 24, 2001*

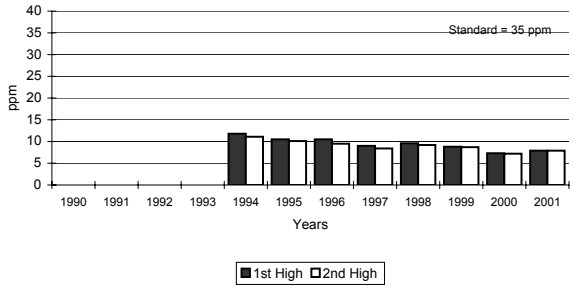
Las Vegas - 625 Shadow Lane
1-Hr CO Concentrations



ID #32-003-0539 (NAMS/SLAMS/SPMS) Maycliff

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	11.8	11.1	0
1995	10.5	10.1	0
1996	10.5	9.5	0
1997	9.0	8.4	0
1998	9.6	9.2	0
1999	8.8	8.7	0
2000	7.3	7.2	0
2001	7.9	7.9	0

Las Vegas - 4001 East Sahara Blvd.
1-Hr CO Concentrations



ID #32-003-1022 (NAMS/SLAMS/SPMS) Flamingo

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	9.2	8.6	0
1995	7.8	7.6	0
1996	8.3	7.8	0
1997	7.3	6.6	0
1998*	8.0	8.0	0
1999	7.6	7.5	0
2000	6.4	6.2	0
2001	6.6	6.2	0

** Data collected for nine months*

Las Vegas - 210 East Flamingo Road
1-Hr CO Concentrations

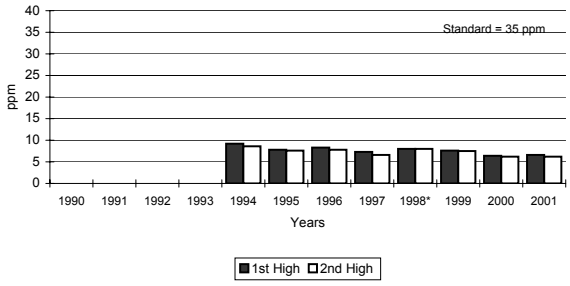


TABLE 3 Continued

One-Hour Carbon Monoxide Concentrations

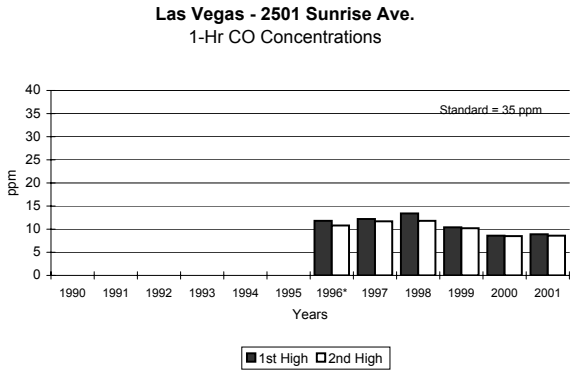
One-Hour Standard: 35 ppm

Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0561 (NAMS/SLAMS) Sunrise Acres

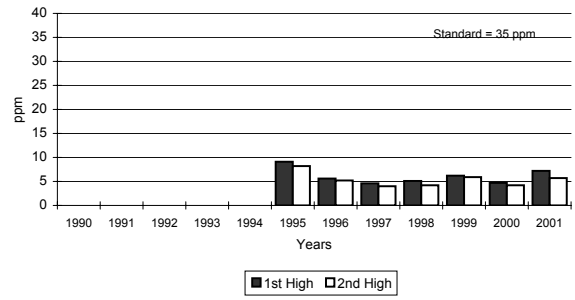
YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996*	11.8	10.8	0
1997	12.2	11.7	0
1998	13.4	11.8	0
1999	10.4	10.2	0
2000	8.6	8.5	0
2001	8.9	8.6	0

** Data for October-December*



ID #32-003-0107 (SLAMS/SPMS) Pittman

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	9.1	8.2	0
1996	5.6	5.2	0
1997	4.6	4.0	0
1998	5.1	4.2	0
1999	6.2	5.9	0
2000	4.7	4.2	0
2001	7.2	5.7	0



ID #32-003-0601 (SPMS/SLAMS) Boulder City

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	1.8	1.5	0
1996	1.5	1.4	0
1997	2.1	1.9	0
1998	1.1	1.1	0
1999	1.5	1.1	0
2000	1.5	1.3	0
2001	1.1	0.9	0

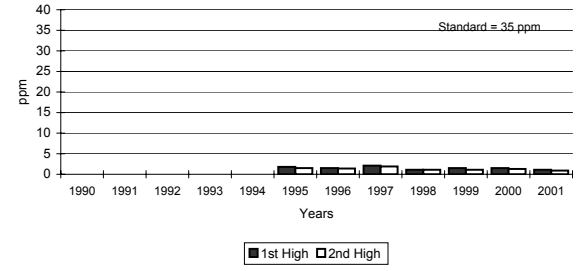


TABLE 3 Continued

One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

Las Vegas, North Las Vegas, Henderson, Boulder City

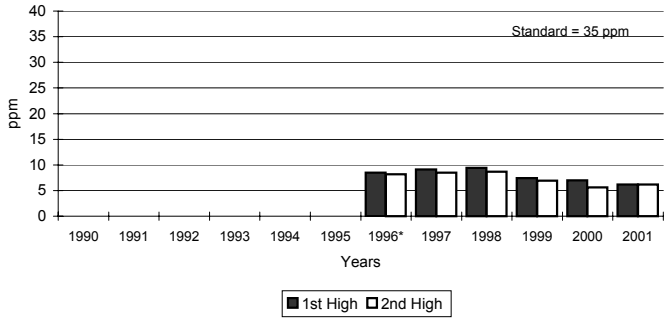
ID #32-003-1023 (NAMS/SLAMS) South Las Vegas Blvd.

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996*	8.5	8.2	0
1997	9.1	8.5	0
1998	9.4	8.7	0
1999	7.4	6.9	0
2000	7.0	5.6	0
2001	6.2	6.2	0

** Incomplete year of operation*

Las Vegas - 3799 South Las Vegas Blvd.

1-Hr CO Concentrations



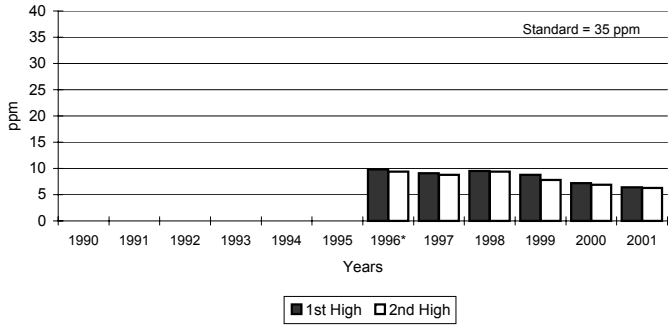
ID #32-003-0562 (NAMS/SLAMS/SPMS) Crestwood

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996*	9.8	9.4	0
1997	9.1	8.8	0
1998	9.5	9.4	0
1999	8.8	7.8	0
2000	7.2	6.9	0
2001	6.4	6.3	0

** Incomplete year of operation*

Las Vegas - 1300 Pauline Way

1-Hr CO Concentrations



ID #32-003-0016 (NAMS/SLAMS/SPMS) City Center Gaseous

YEAR	1st High	2nd High	1-Hour Exceedances
1990	14.4	13.5	0
1991	13.2	11.5	0
1992	11.2	9.4	0
1993	13.7	12.0	0
1994	11.8	11.7	0
1995	10.9	10.2	0
1996	10.7	10.4	0
1997	9.0	8.8	0
1998	10.6	10.3	0
1999	9.0	8.5	0
2000	7.9	7.2	0
2001	6.6	6.5	0

Las Vegas - 559 North Seventh Street

1-Hr CO Concentrations

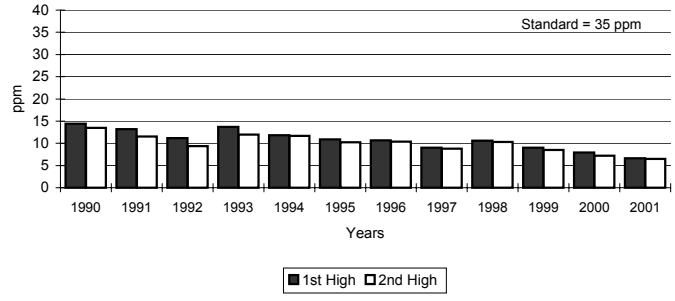


TABLE 3 Continued

One-Hour Carbon Monoxide Concentrations

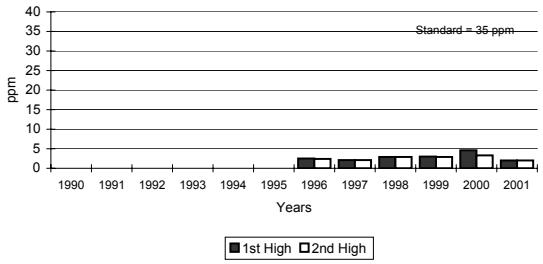
One-Hour Standard: 35 ppm

Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0020 (NAMS/SLAMS/SPMS) Bemis

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	2.5	2.4	0
1997	2.1	2.1	0
1998	2.9	2.9	0
1999	3.0	2.9	0
2000	4.6	3.3	0
2001	2.0	2.0	0

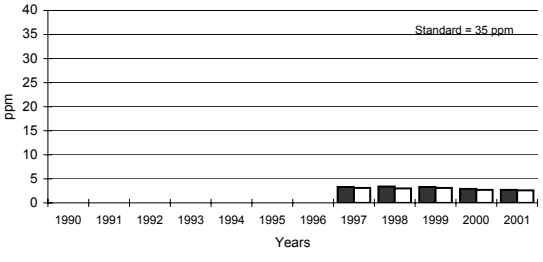
North Las Vegas - 4701 Mitchell St.
1-Hr CO Concentrations



ID #32-003-0298 (SPMS/SLAMS) Green Valley

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	3.3	3.1	0
1998	3.4	3.0	0
1999	3.3	3.1	0
2000	2.9	2.7	0
2001	2.7	2.6	0

Henderson - 248 Arroyo Grande
1-Hr CO Concentrations



ID #32-003-0043 (SPMS/SLAMS) Paul Meyer Park

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	3.4	3.3	0
1998	2.8	2.4	0
1999	2.9	2.8	0
2000	3.9	3.0	0
2001	2.9	2.5	0

Las Vegas - 4525 New Forest Drive
1-Hr CO Concentrations

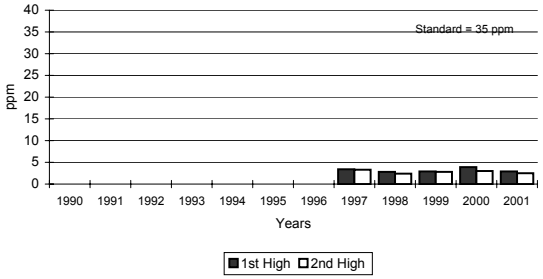


TABLE 3 Continued

One-Hour Carbon Monoxide Concentrations

One-Hour Standard: 35 ppm

Las Vegas, North Las Vegas, Henderson, Boulder City

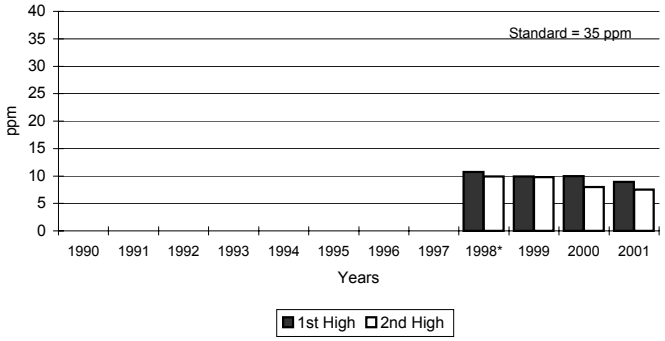
ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

YEAR	1st High	2nd High	1-Hour Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	*no data*	*no data*	*no data*
1998*	10.7	9.9	0
1999	9.9	9.8	0
2000	10.0	8.0	0
2001	8.9	7.5	0

** Data for October - December*

North Las Vegas - 1301B East Tonopah

1-Hr CO Concentrations



ID #32-003-0563 (SPMS) Freedom Park

YEAR	1st High	2nd High	1-Hour Exceedances
2000*	8.5	7.2	0
2001	7.8	7.4	0

** Data for October - December*

Las Vegas - 650 North Mojave Road

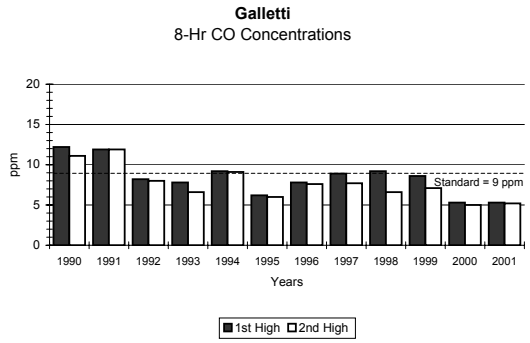
TABLE 4

Eight-Hour Carbon Monoxide Concentrations

State Eight-Hour Standard: 9.0 ppm, Incline Village 6.0 ppm / Federal Standard: 9 ppm
Reno, Sparks, Lemmon Valley, Incline Village, Mustang

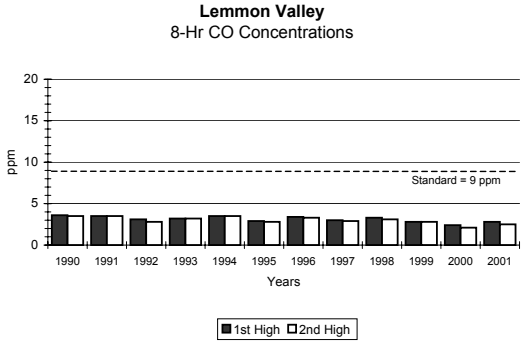
ID #32-031-0022 (NAMS/SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	12.2	11.1	6
1991	11.9	11.9	3
1992	8.2	8.0	0
1993	7.8	6.6	0
1994	9.2	9.1	0
1995	6.2	6.0	0
1996	7.8	7.6	0
1997	8.9	7.7	0
1998	9.2	6.6	0
1999	8.6	7.1	0
2000	5.3	5.0	0
2001	5.3	5.2	0



ID #32-031-2009 (SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	3.6	3.5	0
1991	3.5	3.5	0
1992	3.1	2.8	0
1993	3.2	3.2	0
1994	3.5	3.5	0
1995	2.9	2.8	0
1996	3.4	3.3	0
1997	3.0	2.9	0
1998	3.3	3.1	0
1999	2.8	2.8	0
2000	2.4	2.1	0
2001	2.8	2.5	0



ID #32-031-0016 (NAMS/SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	10.0	8.5	1
1991	10.7	9.4	1
1992	8.8	6.7	0
1993	5.7	5.5	0
1994	7.2	6.8	0
1995	5.3	5.1	0
1996	6.0	5.9	0
1997	6.4	5.5	0
1998	6.9	5.7	0
1999	7.5	7.0	0
2000	4.1	3.6	0
2001	3.8	3.7	0

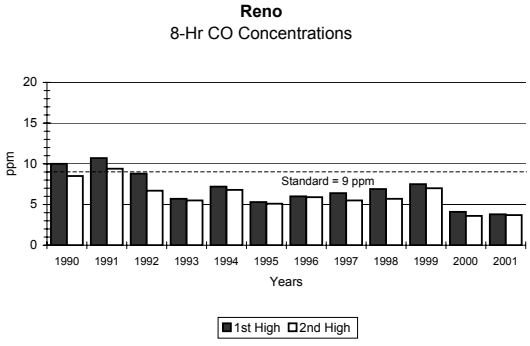


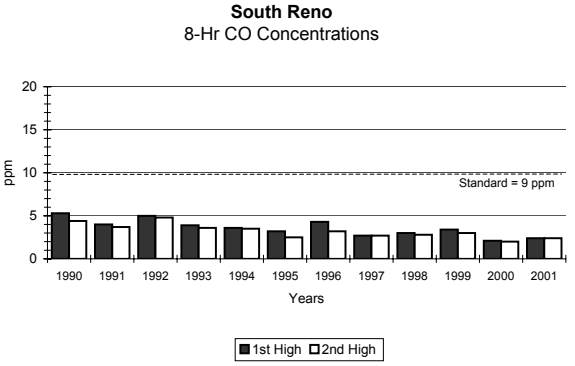
TABLE 4 Continued

Eight-Hour Carbon Monoxide Concentrations

State Eight-Hour Standard: 9.0 ppm, Incline Village 6.0 ppm / Federal Standard: 9 ppm
Reno, Sparks, Lemmon Valley, Incline Village, Mustang

ID #32-031-0020 (NAMS/SLAMS)

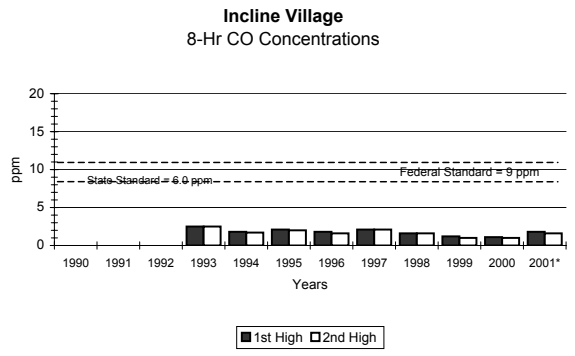
YEAR	1st High	2nd High	Federal Exceedances
1990	5.3	4.4	0
1991	4.0	3.7	0
1992	5.0	4.8	0
1993	3.9	3.6	0
1994	3.6	3.5	0
1995	3.2	2.5	0
1996	4.3	3.2	0
1997	2.7	2.7	0
1998	3.0	2.8	0
1999	3.4	3.0	0
2000	2.1	2.0	0
2001	2.4	2.4	0



ID #32-031-2002 (SPMS/SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	2.5	2.5	0
1994	1.8	1.7	0
1995	2.1	2.0	0
1996	1.8	1.6	0
1997	2.1	2.1	0
1998	1.6	1.6	0
1999	1.2	1.0	0
2000	1.1	1.0	0
2001*	1.8	1.6	0

**Affected by Star Fire, El Dorado National Forest, 8/28-29/01*



ID #32-031-1005 (NAMS/SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	9.6	9.5	1
1991	10.1	8.9	1
1992	7.6	7.6	0
1993	6.2	6.0	0
1994	7.3	7.0	0
1995	7.2	6.9	0
1996	6.4	5.8	0
1997	7.7	7.3	0
1998	7.0	5.8	0
1999	7.1	6.8	0
2000	5.4	5.2	0
2001	5.2	4.6	0

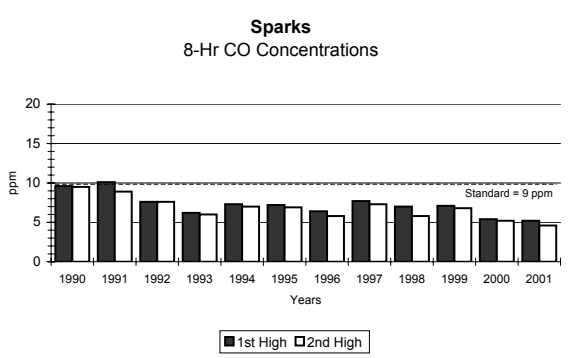


TABLE 4 Continued

Eight-Hour Carbon Monoxide Concentrations

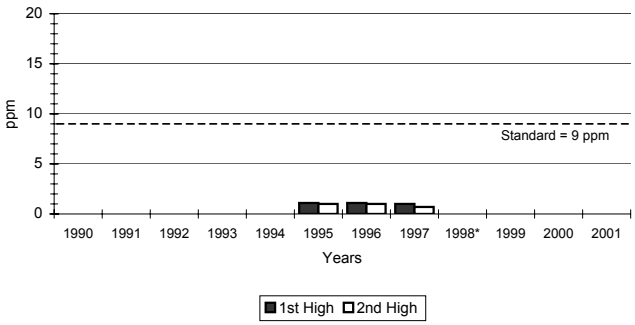
State Eight-Hour Standard: 9.0 ppm, Incline Village 6.0 ppm / Federal Standard: 9 ppm
Reno, Sparks, Lemmon Valley, Incline Village, Mustang

(SPMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	1.1	1.0	0
1996	1.1	1.0	0
1997	1.0	0.7	0
1998*	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Discontinued monitoring March 5, 1998*

Mustang
8-Hr CO Concentrations



(SPMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	1.8	1.7	0
1997	1.8	1.8	0
1998	2.6	2.6	0
1999	2.3	2.0	0
2000	1.3	1.3	0
2001	2.0	1.2	0

Toll (Geiger Grade)
8-Hr CO Concentrations

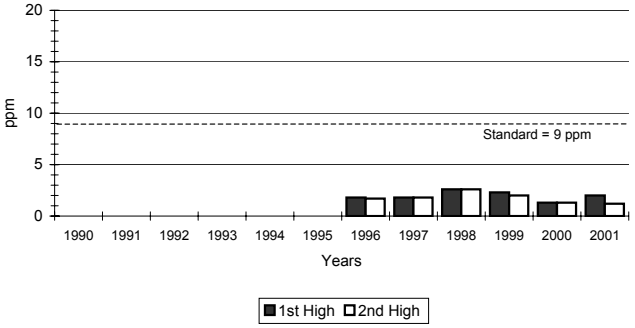


TABLE 5

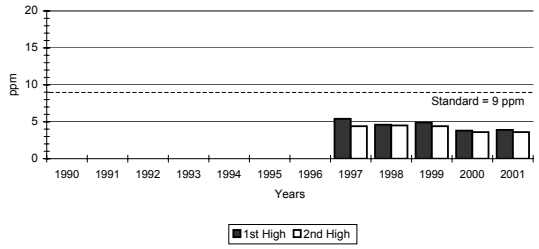
Eight-Hour Carbon Monoxide Concentrations

State Eight-Hour Standard: 9.0 ppm, Stateline 6.0 ppm / Federal Standard: 9 ppm
Carson City, Stateline, Minden

ID #32-510-0004 (SLAMS/SPMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	5.4	4.4	0
1998	4.6	4.5	0
1999	4.9	4.4	0
2000	3.8	3.6	0
2001	3.9	3.6	0

Carson City - Long Street
8-Hr CO Concentrations



ID #32-510-0002 (SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1989	2.4	2.3	0

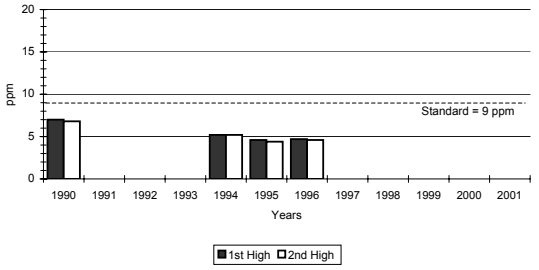
Carson City - E. Fifth Street

(SPMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	7.0	6.8	0
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	5.2	5.2	0
1995	4.6	4.4	0
1996	4.7	4.6	0
1997	*no data*	*no data*	*no data*
1998	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Fall/winter only*

Carson City - Roberts House*
8-Hr CO Concentrations



(SPMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	6.0	5.4	0
1992	6.3	5.9	0
1993	6.2	6.2	0
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	*no data*	*no data*	*no data*
1998	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Fall/winter only*

Carson City - Ann Street*
8-Hr CO Concentrations

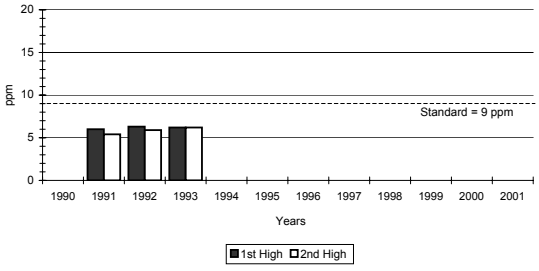


TABLE 5 Continued

Eight-Hour Carbon Monoxide Concentrations

State Eight-Hour Standard: 9.0 ppm, Stateline 6.0 ppm / Federal Standard: 9 ppm
Carson City, Stateline, Minden

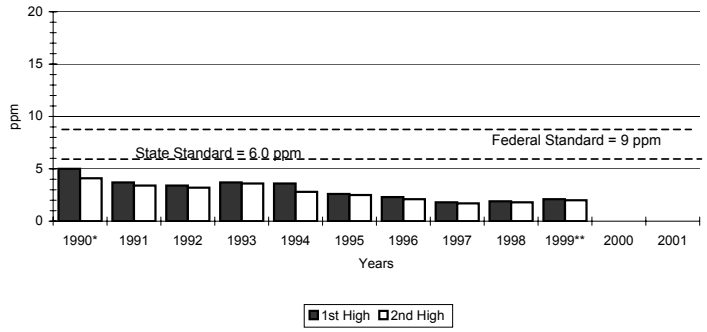
ID #32-005-0004 (SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990*	5.0	4.1	0
1991	3.7	3.4	0
1992	3.4	3.2	0
1993	3.7	3.6	0
1994	3.6	2.8	0
1995	2.6	2.5	0
1996	2.3	2.1	0
1997	1.8	1.7	0
1998	1.9	1.8	0
1999**	2.1	2.0	0
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Power disruptions due to construction & vandalism: incomplete yr.*

***Data for January-June: discontinued monitoring*

Stateline - Horizon Casino Resort
8-Hr CO Concentrations



ID #32-005-0004 (SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1998	1.8	1.7	0
1999*	1.1	1.1	0

**Discontinued monitoring at the end of 1999*

Minden - Law Enforcement Center

ID #32-005-0009 (SLAMS)

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	*no data*	*no data*	*no data*
1998	*no data*	*no data*	*no data*
1999*	4.6	4.3	0
2000	4.4	4.2	0
2001	3.7	3.6	0

**New site: data for October-December*

Stateline - Harvey's Resort Hotel
8-Hr CO Concentrations

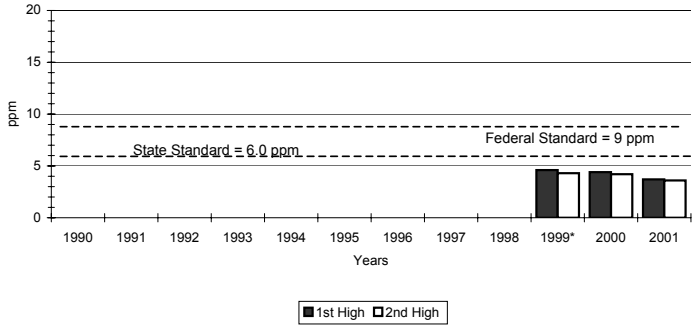


TABLE 6

Eight-Hour Carbon Monoxide Concentrations

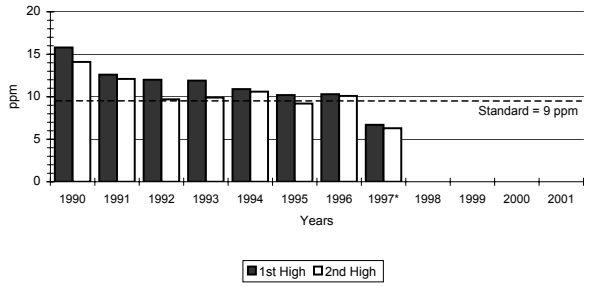
State Eight-Hour Standard: 9.0 ppm / Federal Standard: 9 ppm
Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0557 (NAMS/SLAMS) East Charleston

YEAR	1st High	2nd High	Federal Exceedances
1990	15.8	14.1	13
1991	12.6	12.1	6
1992	12.0	9.7	2
1993	11.9	9.9	3
1994	10.9	10.6	4
1995	10.2	9.2	1
1996	10.3	10.1	3
1997*	6.7	6.3	0
1998	*no data*	*no data*	*no data*
1999	*no data*	*no data*	*no data*
2000	*no data*	*no data*	*no data*
2001	*no data*	*no data*	*no data*

** Data for January-March. This site replaced by Sunrise Acres site.*

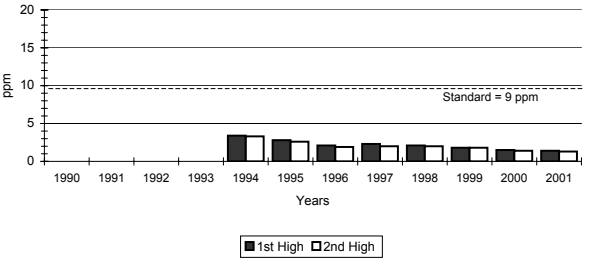
Las Vegas - 2850 East Charleston Blvd.
8-Hr CO Concentrations



ID #32-003-0007 (NAMS/SLAMS/SPMS) Powerline

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	3.4	3.3	0
1995	2.8	2.6	0
1996	2.1	1.9	0
1997	2.3	2.0	0
1998	2.1	2.0	0
1999	1.8	1.8	0
2000	1.5	1.4	0
2001	1.4	1.3	0

Henderson - 545 Lake Mead Drive
8-Hr CO Concentrations



ID #32-003-0538 (NAMS/SLAMS/SPMS) Winterwood

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	8.4	7.0	0
1995	6.8	5.6	0
1996	7.0	4.6	0
1997	4.8	4.4	0
1998	6.3	6.1	0
1999	7.1	6.5	0
2000	4.1	4.1	0
2001	4.5	3.9	0

Las Vegas - 5483 Clubhouse Drive
8-Hr CO Concentrations

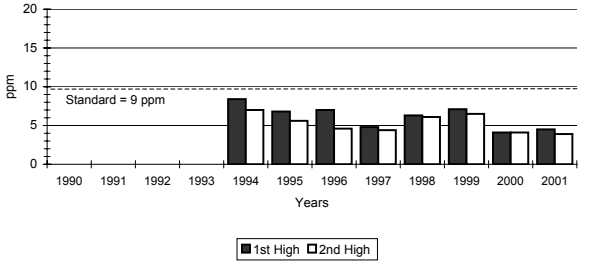


TABLE 6 Continued

Eight-Hour Carbon Monoxide Concentrations

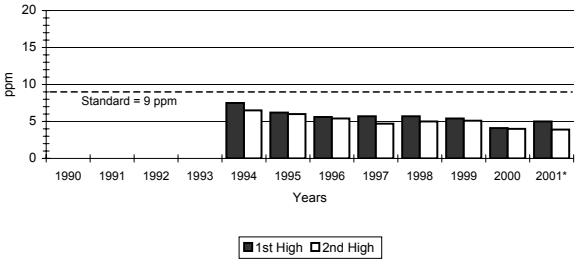
State Eight-Hour Standard: 9.0 ppm / Federal Standard: 9 ppm
Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0021 (SPMS/SLAMS) Health District

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	7.5	6.5	0
1995	6.2	6.0	0
1996	5.6	5.4	0
1997	5.7	4.7	0
1998	5.7	5.0	0
1999	5.4	5.1	0
2000	4.1	4.0	0
2001*	5.0	3.9	0

** Site closed October 24, 2001*

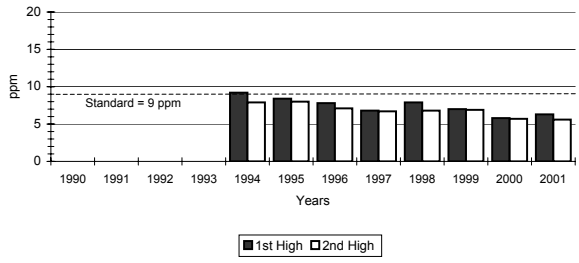
Las Vegas - 625 Shadow Lane
8-Hr CO Concentrations



ID #32-003-0539 (NAMS/SLAMS/SPMS) Maycliff

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	9.2	7.9	0
1995	8.4	8.0	0
1996	7.8	7.1	0
1997	6.8	6.7	0
1998	7.9	6.8	0
1999	7.0	6.9	0
2000	5.8	5.7	0
2001	6.3	5.6	0

Las Vegas - 4001 East Sahara Blvd.
8-Hr CO Concentrations



ID #32-003-1022 (NAMS/SLAMS/SPMS) Flamingo

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	7.7	6.0	0
1995	4.6	4.6	0
1996	5.0	4.5	0
1997	4.5	4.3	0
1998*	5.3	5.0	0
1999	5.7	5.2	0
2000	5.1	4.2	0
2001	4.3	3.9	0

** Data for nine months*

Las Vegas - 210 East Flamingo Road
8-Hr CO Concentrations

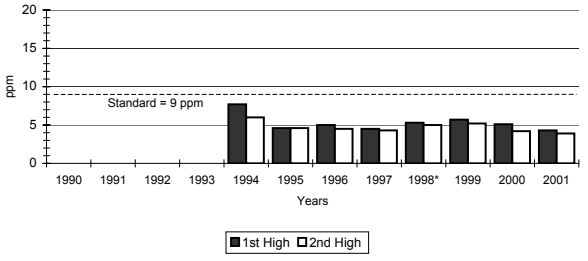


TABLE 6 Continued

Eight-Hour Carbon Monoxide Concentrations

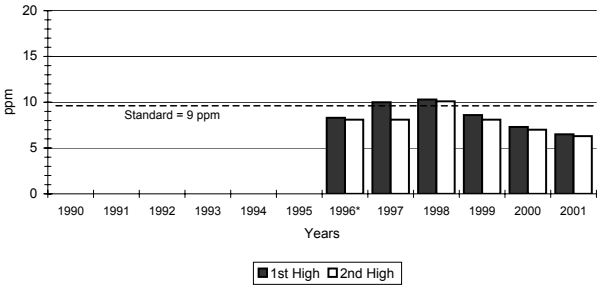
State Eight-Hour Standard: 9.0 ppm / Federal Standard: 9 ppm
Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0561 (NAMS/SLAMS) Sunrise Acres

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996*	8.3	8.1	0
1997	10.0	8.1	1
1998	10.3	10.1	2
1999	8.6	8.1	0
2000	7.3	7.0	0
2001	6.5	6.3	0

** Data for October-December*

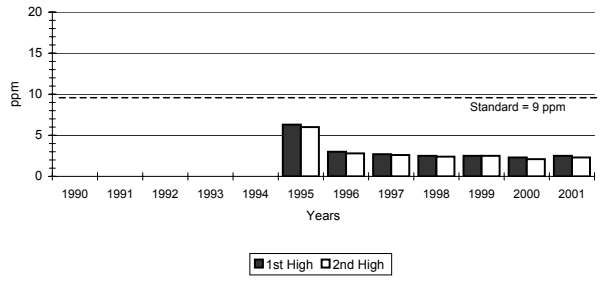
Las Vegas - 2501 Sunrise Ave.
8-Hr CO Concentrations



ID #32-003-0107 (SLAMS/SPMS) Pittman

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	6.3	6.0	0
1996	3.0	2.8	0
1997	2.7	2.6	0
1998	2.5	2.4	0
1999	2.5	2.5	0
2000	2.3	2.1	0
2001	2.5	2.3	0

Henderson - 1137 North Boulder Highway
8-Hr CO Concentrations



ID #32-003-0601 (SPMS/SLAMS) Boulder City

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	1.0	1.0	0
1996	1.0	0.9	0
1997	1.3	1.2	0
1998	0.7	0.7	0
1999	0.7	0.6	0
2000	1.2	1.0	0
2001	0.7	0.7	0

Boulder City - 1005 Industrial Road
8-Hr CO Concentrations

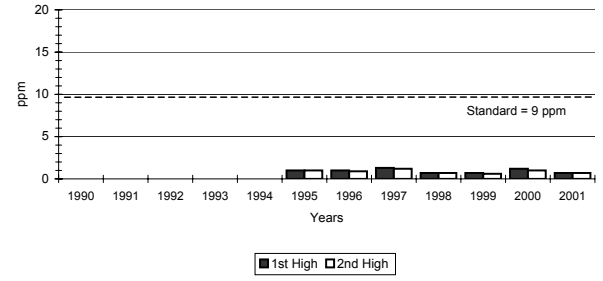


TABLE 6 Continued

Eight-Hour Carbon Monoxide Concentrations

State Eight-Hour Standard: 9.0 ppm / Federal Standard: 9 ppm

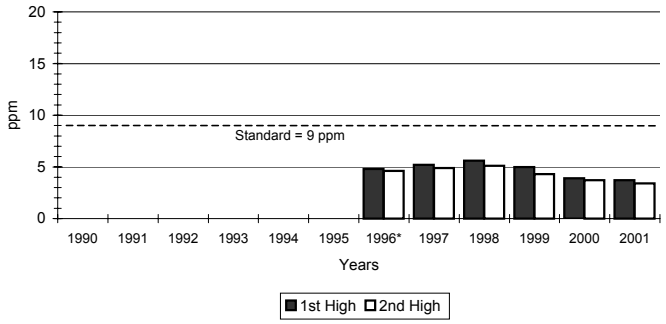
Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-1023 (NAMS/SLAMS) South Las Vegas Blvd.

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996*	4.8	4.6	0
1997	5.2	4.9	0
1998	5.6	5.1	0
1999	5.0	4.3	0
2000	3.9	3.7	0
2001	3.7	3.4	0

** Incomplete year of operation*

Las Vegas - 3799 South Las Vegas Blvd.
8-Hr CO Concentrations

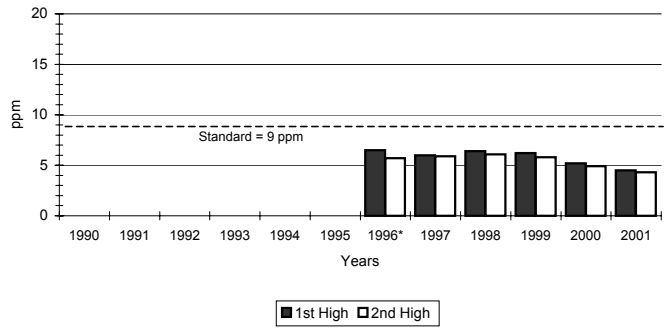


ID #32-003-0562 (NAMS/SLAMS/SPMS) Crestwood

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996*	6.5	5.7	0
1997	6.0	5.9	0
1998	6.4	6.1	0
1999	6.2	5.8	0
2000	5.2	4.9	0
2001	4.5	4.3	0

** Incomplete year of operation*

Las Vegas - 1300 Pauline Way
8-Hr CO Concentrations



ID #32-003-0016 (NAMS/SLAMS/SPMS) City Center Gaseous

YEAR	1st High	2nd High	Federal Exceedances
1990	8.6	7.7	0
1991	7.4	6.9	0
1992	7.4	6.1	0
1993	7.4	7.2	0
1994	7.5	6.9	0
1995	6.9	6.4	0
1996	6.8	6.6	0
1997	5.7	5.5	0
1998	7.7	6.2	0
1999	5.7	5.6	0
2000	5.1	4.5	0
2001	4.4	4.3	0

Las Vegas - 559 North Seventh Street
8-Hr CO Concentrations

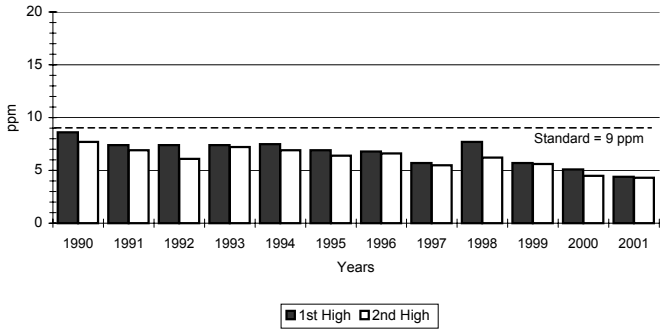


TABLE 6 Continued

Eight-Hour Carbon Monoxide Concentrations

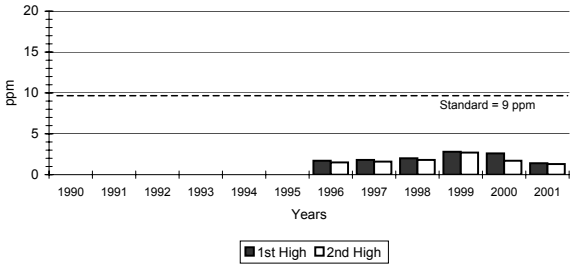
State Eight-Hour Standard: 9.0 ppm / Federal Standard: 9 ppm

Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-0020 (NAMS/SLAMS/SPMS) Bemis

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	1.7	1.5	0
1997	1.8	1.6	0
1998	2.0	1.8	0
1999	2.8	2.7	0
2000	2.6	1.7	0
2001	1.4	1.3	0

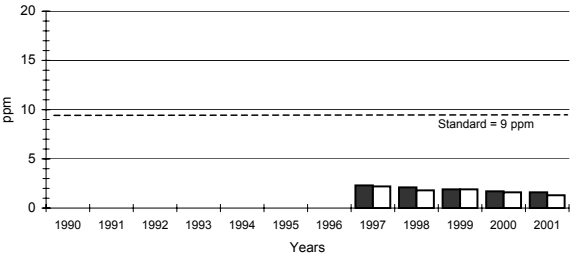
North Las Vegas - 4701 Mitchell St.
8-Hr CO Concentrations



ID #32-003-0298 (SPMS/SLAMS) Green Valley

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	2.3	2.2	0
1998	2.1	1.8	0
1999	1.9	1.9	0
2000	1.7	1.6	0
2001	1.6	1.3	0

Henderson - 248 Arroyo Grande
8-Hr CO Concentrations



ID #32-003-0043 (SPMS/SLAMS) Paul Meyer Park

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	2.0	1.9	0
1998	1.7	1.5	0
1999	2.1	2.0	0
2000	1.8	1.6	0
2001	1.1	1.0	0

Las Vegas - 4525 New Forest Drive
8-Hr CO Concentrations

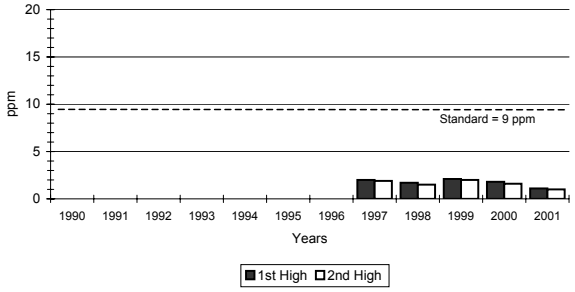


TABLE 6 Continued

Eight-Hour Carbon Monoxide Concentrations

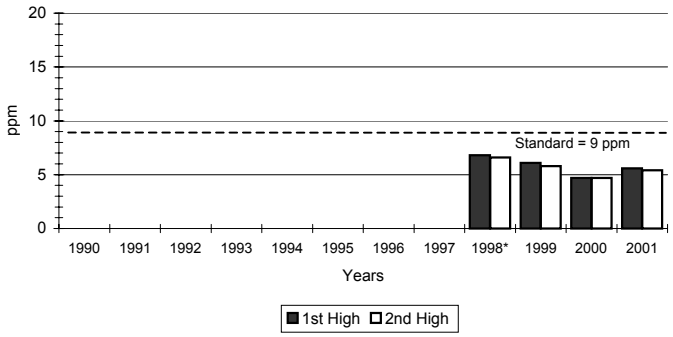
State Eight-Hour Standard: 9.0 ppm / Federal Standard: 9 ppm
Las Vegas, North Las Vegas, Henderson, Boulder City

ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

YEAR	1st High	2nd High	Federal Exceedances
1990	*no data*	*no data*	*no data*
1991	*no data*	*no data*	*no data*
1992	*no data*	*no data*	*no data*
1993	*no data*	*no data*	*no data*
1994	*no data*	*no data*	*no data*
1995	*no data*	*no data*	*no data*
1996	*no data*	*no data*	*no data*
1997	*no data*	*no data*	*no data*
1998*	6.8	6.6	0
1999	6.1	5.8	0
2000	4.7	4.7	0
2001	5.6	5.4	0

** Data for October-December*

North Las Vegas - 1301B East Tonopah
8-Hr CO Concentrations



ID #32-003-0563 (SPMS) Freedom Park

YEAR	1st High	2nd High	Federal Exceedances
2000*	5.8	5.5	0
2001	5.3	5.1	0

** Data for October-December*

Las Vegas - 650 North Mojave Road

TABLE 7

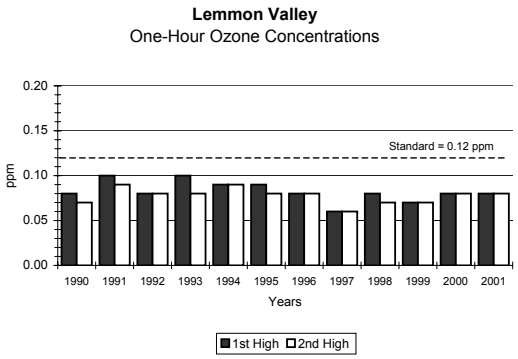
One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm

Reno, Sparks, Lemmon Valley, Incline Village, Mustang

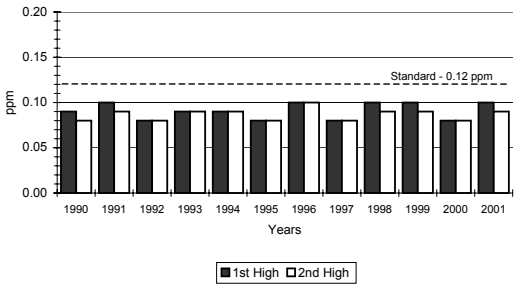
ID #32-031-2009 (SLAMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.08	0.07	0	0
1991	0.10	0.09	0	0
1992	0.08	0.08	0	0
1993	0.10	0.08	0	0
1994	0.09	0.09	0	0
1995	0.09	0.08	0	0
1996	0.08	0.08	0	0
1997	0.06	0.06	0	0
1998	0.08	0.07	0	0
1999	0.07	0.07	0	0
2000	0.08	0.08	0	0
2001	0.08	0.08	0	0



ID #32-031-0016 (NAMS/SLAMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.09	0.08	0	0
1991	0.10	0.09	0	0
1992	0.08	0.08	0	0
1993	0.09	0.09	0	0
1994	0.09	0.09	0	0
1995	0.08	0.08	0	0
1996	0.10	0.10	0	0
1997	0.08	0.08	0	0
1998	0.10	0.09	0	0
1999	0.10	0.09	0	0
2000	0.08	0.08	0	0
2001	0.10	0.09	0	0



ID #32-031-1005 (NAMS/SLAMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.17	0.15	9	4
1991	0.11	0.09	0	0
1992	0.09	0.08	0	0
1993	0.09	0.09	0	0
1994	0.09	0.09	0	0
1995	0.09	0.09	0	0
1996	0.10	0.10	0	0
1997	0.08	0.08	0	0
1998	0.09	0.09	0	0
1999	0.12	0.10	0	0
2000	0.09	0.08	0	0
2001	0.09	0.09	0	0

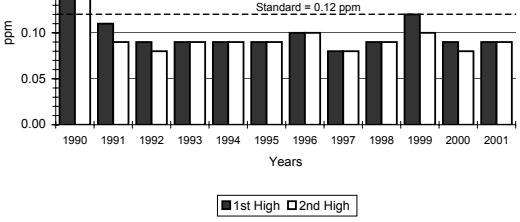


TABLE 7 Continued

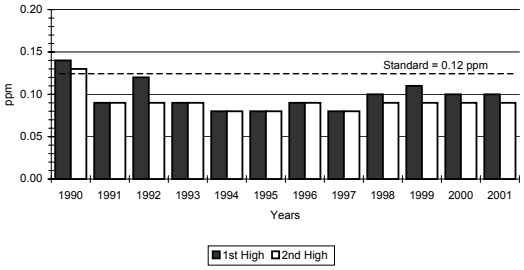
One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm / State One-Hour Standard for Incline Village: 0.10 ppm
Reno, Sparks, Lemmon Valley, Incline Village, Mustang

ID #32-031-0020 (NAMS/SLAMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.14	0.13	3	2
1991	0.09	0.09	0	0
1992	0.12	0.09	0	0
1993	0.09	0.09	0	0
1994	0.08	0.08	0	0
1995	0.08	0.08	0	0
1996	0.09	0.09	0	0
1997	0.08	0.08	0	0
1998	0.10	0.09	0	0
1999	0.11	0.09	0	0
2000	0.10	0.09	0	0
2001	0.10	0.09	0	0

South Reno
One-Hour Ozone Concentrations

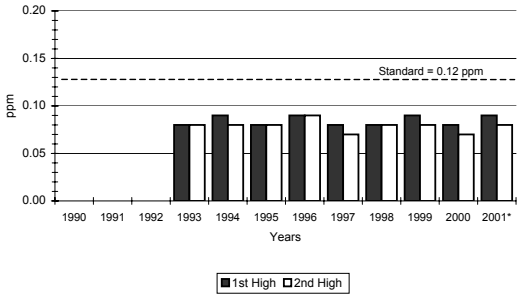


ID #32-031-2002(SPMS/SLAMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	0.08	0.08	0	0
1994	0.09	0.08	0	0
1995	0.08	0.08	0	0
1996	0.09	0.09	0	0
1997	0.08	0.07	0	0
1998	0.08	0.08	0	0
1999	0.09	0.08	0	0
2000	0.08	0.07	0	0
2001*	0.09	0.08	0	0

**1st-high affected by Star Fire, El Dorado National Forest, 8/29/01*

Incline Village
One-Hour Ozone Concentrations



(SPMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	
1993	*no data*	*no data*	---	---
1994	0.08	0.08	0	0
1995	0.09	0.09	0	0
1996	0.10	0.10	0	0
1997	0.10	0.09	0	0
1998	0.09	0.09	0	0
1999	0.09	0.09	0	0
2000	0.09	0.08	0	0
2001	0.09	0.09	0	0

Mustang
One-Hour Ozone Concentrations

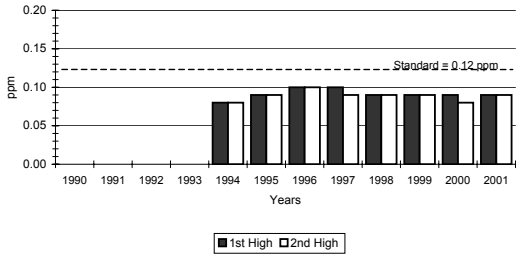


TABLE 7 Continued

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm / State One-Hour Standard for Incline Village: 0.10 ppm

Reno, Sparks, Lemmon Valley, Incline Village, Mustang

(SPMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	0.10	0.09	0	0
1997	0.08	0.08	0	0
1998	0.08	0.08	0	0
1999	0.09	0.09	0	0
2000	0.09	0.08	0	0
2001	0.10	0.09	0	0

Toll (Geiger Grade)

One-Hour Ozone Concentrations

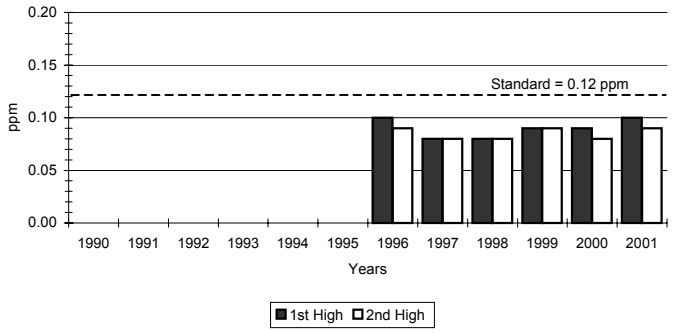


TABLE 8

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm / State One-Hour Standard for Stateline: 0.10 ppm
Carson City, Stateline, Fernley, Fallon, Zephyr Cove, Great Basin National Park

ID #32-510-0002 (SLAMS)

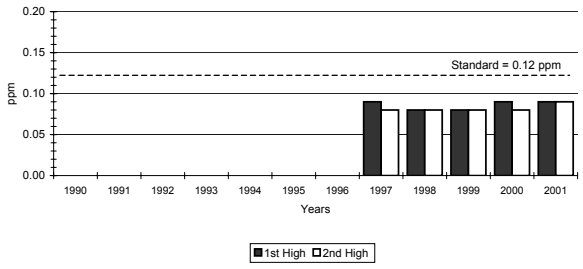
YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1989	0.10	0.09	0	0

Carson City - E. Fifth Street

ID #32-510-0004 (SLAMS/SPMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	0.09	0.08	0	0
1998	0.08	0.08	0	0
1999	0.08	0.08	0	0
2000	0.09	0.08	0	0
2001	0.09	0.09	0	0

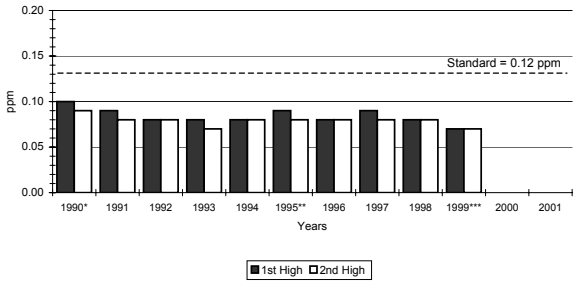
Carson City - Long Street
One-Hour Ozone Concentrations



ID #32-005-0004 (SLAMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990*	0.10	0.09	0	0
1991	0.09	0.08	0	0
1992	0.08	0.08	0	0
1993	0.08	0.07	0	0
1994	0.08	0.08	0	0
1995**	0.09	0.08	0	0
1996	0.08	0.08	0	0
1997	0.09	0.08	0	0
1998	0.08	0.08	0	0
1999***	0.07	0.07	0	0
2000	*no data*	*no data*	---	---
2001	*no data*	*no data*	---	---

Stateline - Horizon Casino Resort
One-Hour Ozone Concentrations



** Power disruptions due to construction and vandalism: incomplete year*

*** Transported from California urban areas per CARB study*

****Data for January-June: discontinued monitoring*

(SPMS)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998	0.08	0.08	0	0
1999	0.09	0.08	0	0
2000	0.08	0.07	0	0
2001	0.08	0.08	0	0

Fernley - Volunteer Fire Dept.
One-Hour Ozone Concentrations

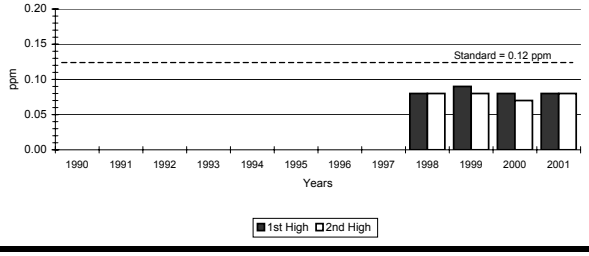


TABLE 8 Continued

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm / State One-Hour Standard for Stateline: 0.10 ppm
Carson City, Stateline, Fernley, Fallon, Zephyr Cove, Great Basin National Park

(SPMS)

Fallon - West End School

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1999*	0.07	0.06	0	0
2000	0.08	0.07	0	0
2001	0.07	0.07	0	0

**Data for October-December*

ID #32-005-0008 (SLAMS)

Zephyr Cove - Cave Rock

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1999*	0.09	0.09	0	0
2000	0.09	0.09	0	0
2001	0.10	0.09	0	0

**Data for July-December*

ID #32-033-0101 (National Park Service)

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	0.08	0.07	0	0
1995	0.08	0.08	0	0
1996	0.08	0.08	0	0
1997	0.08	0.08	0	0
1998	0.08	0.08	0	0
1999	0.09	0.08	0	0
2000	0.08	0.08	0	0
2001	0.08	0.08	0	0

Great Basin National Park - Lehman Caves
One-Hour Ozone Concentrations

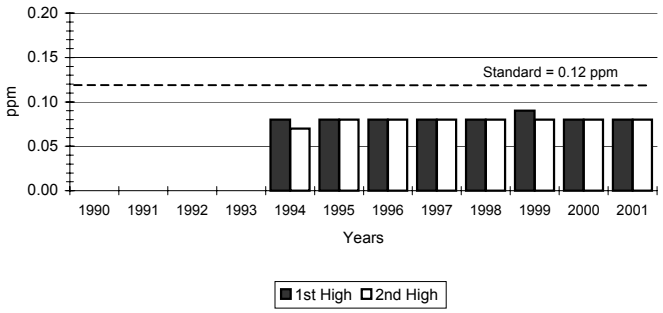


TABLE 9

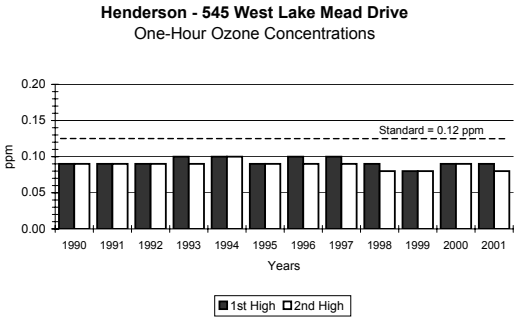
One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm

Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

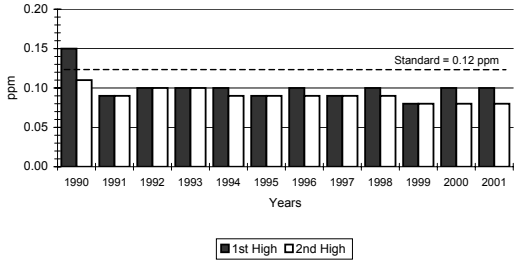
ID #32-003-0007 (NAMS/SLAMS/SPMS) Powerline

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.09	0.09	0	0
1991	0.09	0.09	0	0
1992	0.09	0.09	0	0
1993	0.10	0.09	0	0
1994	0.10	0.10	0	0
1995	0.09	0.09	0	0
1996	0.10	0.09	0	0
1997	0.10	0.09	0	0
1998	0.09	0.08	0	0
1999	0.08	0.08	0	0
2000	0.09	0.09	0	0
2001	0.09	0.08	0	0



ID #32-003-0016 (NAMS/SLAMS/SPMS) City Center Gaseous

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.15	0.11	1	1
1991	0.09	0.09	0	0
1992	0.10	0.10	0	0
1993	0.10	0.10	0	0
1994	0.10	0.09	0	0
1995	0.09	0.09	0	0
1996	0.10	0.09	0	0
1997	0.09	0.09	0	0
1998	0.10	0.09	0	0
1999	0.08	0.08	0	0
2000	0.10	0.08	0	0
2001	0.10	0.08	0	0



ID # 32-003-0020 (NAMS/SLAMS/SPMS) Bemis

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	0.11	0.10	0	0
1993	0.10	0.10	0	0
1994	0.10	0.10	0	0
1995	0.09	0.09	0	0
1996	0.10	0.10	0	0
1997	0.09	0.09	0	0
1998	0.10	0.10	0	0
1999	0.09	0.09	0	0
2000	0.09	0.09	0	0
2001	0.10	0.09	0	0

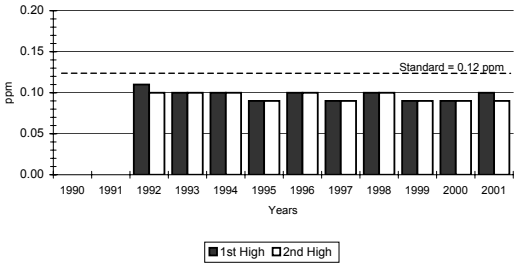


TABLE 9 Continued

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm

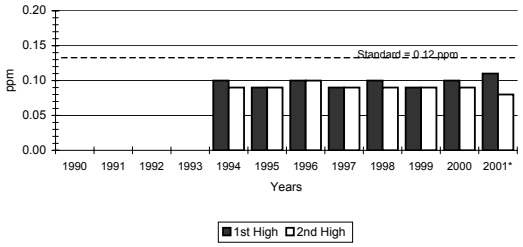
Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

ID #32-003-0021 (SLAMS/SPMS) Health District

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	0.10	0.09	0	0
1995	0.09	0.09	0	0
1996	0.10	0.10	0	0
1997	0.09	0.09	0	0
1998	0.10	0.09	0	0
1999	0.09	0.09	0	0
2000	0.10	0.09	0	0
2001*	0.11	0.08	0	0

**Site closed October 24, 2001*

Las Vegas - 625 Shadow Lane
One-Hour Ozone Concentrations



ID #32-003-1022 (NAMS/SLAMS/SPMS) Flamingo

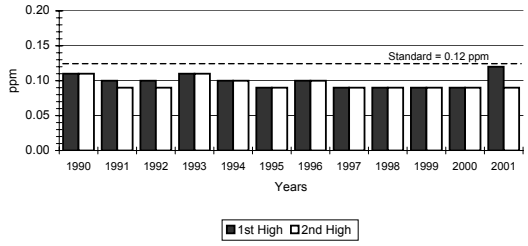
YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1994	0.09	0.09	0	0
1995	0.09	0.09	0	0

Las Vegas - 366 East Flamingo Road

ID #32-003-0538 (NAMS/SLAMS/SPMS) Winterwood

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	0.11	0.11	0	0
1991	0.10	0.09	0	0
1992	0.10	0.09	0	0
1993	0.11	0.11	0	0
1994	0.10	0.10	0	0
1995	0.09	0.09	0	0
1996	0.10	0.10	0	0
1997	0.09	0.09	0	0
1998	0.09	0.09	0	0
1999	0.09	0.09	0	0
2000	0.09	0.09	0	0
2001	0.12	0.09	0	0

Las Vegas - 5483 Clubhouse Drive
One-Hour Ozone Concentrations



ID #32-003-0022 (SPMS/SLAMS) Apex

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	0.10	0.09	0	0
1998	0.10	0.10	0	0
1999	0.10	0.10	0	0
2000	0.10	0.09	0	0
2001	0.09	0.09	0	0

12101 U.S. Highway 93
One-Hour Ozone Concentrations

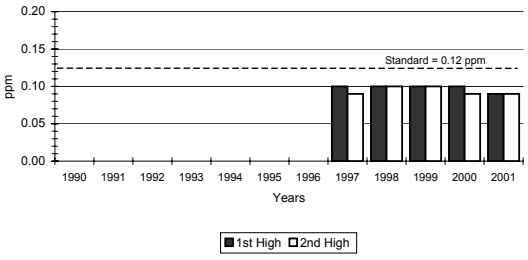


TABLE 9 Continued

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm

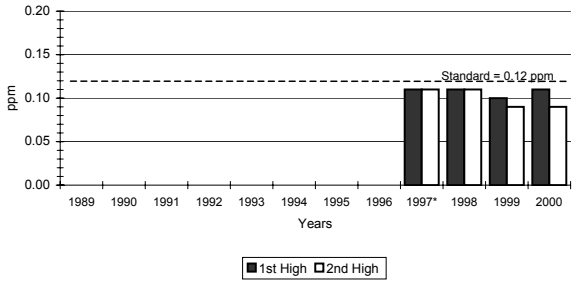
Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

ID #32-003-0072 (SPMS/SLAMS) Lone Mountain

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1989	*no data*	*no data*	---	---
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997*	0.11	0.11	0	0
1998	0.11	0.11	0	0
1999	0.10	0.09	0	0
2000	0.11	0.09	0	0

** Data for June - December*

Las Vegas - 3525 North Valadez Street
One-Hour Ozone Concentrations

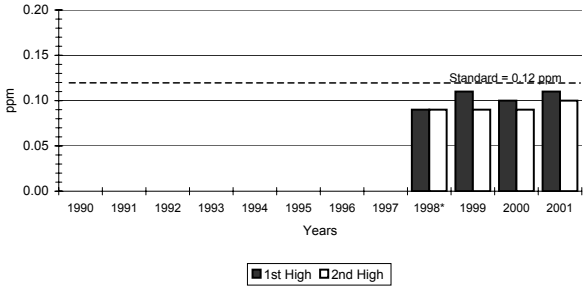


'ID #32-003-0071 (SLAMS/SPMS) Walter Johnson

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998*	0.09	0.09	0	0
1999	0.11	0.09	0	0
2000	0.10	0.09	0	0
2001	0.11	0.10	0	0

** Data for August -December*

Las Vegas - 7701 Ducharme Avenue
One-Hour Ozone Concentrations



ID #32-003-0073 (SPMS/SLAMS) Palo Verde

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998	0.12	0.11	0	0
1999	0.11	0.10	0	0
2000	0.10	0.09	0	0
2001	0.11	0.10	0	0

** Data for June - December*

Las Vegas - 333 Pavilion Center Drive
One-Hour Ozone Concentrations

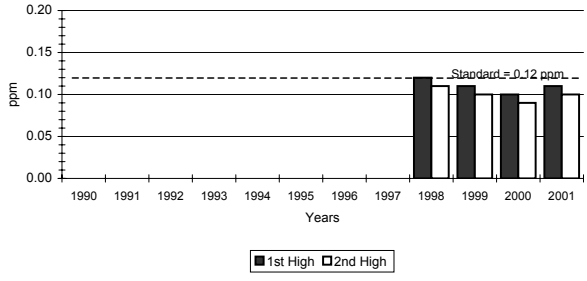


TABLE 9 Continued

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm

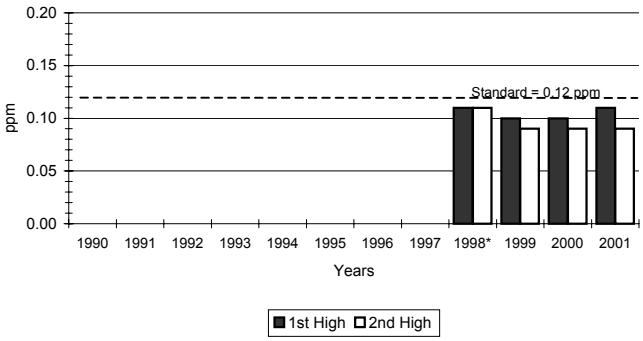
Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

ID #32-003-0043 (SPMS/SLAMS) Paul Meyer Park

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998*	0.11	0.11	0	0
1999	0.10	0.09	0	0
2000	0.10	0.09	0	0
2001	0.11	0.09	0	0

** Data for July - December*

Las Vegas - 4525 New Forest Drive
One-Hour Ozone Concentrations

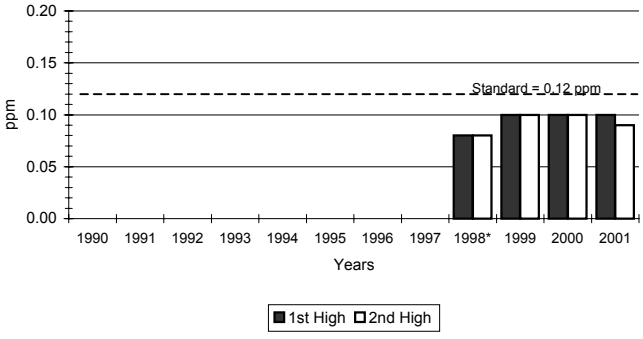


'ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998*	0.08	0.08	0	0
1999	0.10	0.10	0	0
2000	0.10	0.10	0	0
2001	0.10	0.09	0	0

** Data for October - December*

North Las Vegas - 1301B East Tonopah
One-Hour Ozone Concentrations



ID #32-003-0601 (SPMS/SLAMS) Boulder City

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998*	0.07	0.07	0	0
1999	0.09	0.09	0	0
2000	0.09	0.09	0	0
2001	0.08	0.08	0	0

** Data for August - December*

Boulder City - 1005 Industrial Road
One-Hour Ozone Concentrations

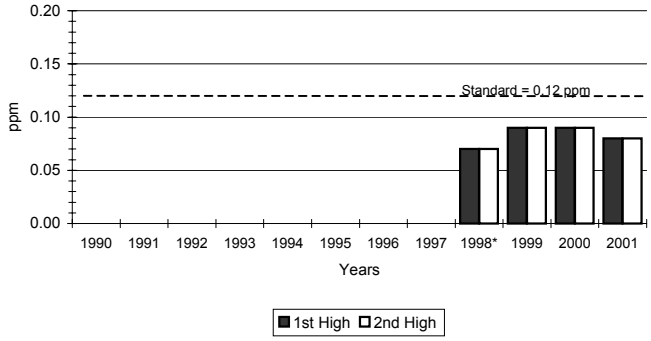


TABLE 9 Continued

One-Hour Ozone Concentrations

One-Hour Standard: 0.12 ppm

Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

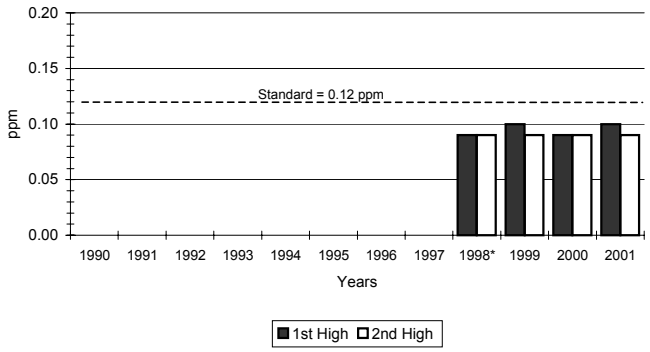
'ID #32-003-1019 (SLAMS/SPMS) Jean

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
1990	*no data*	*no data*	---	---
1991	*no data*	*no data*	---	---
1992	*no data*	*no data*	---	---
1993	*no data*	*no data*	---	---
1994	*no data*	*no data*	---	---
1995	*no data*	*no data*	---	---
1996	*no data*	*no data*	---	---
1997	*no data*	*no data*	---	---
1998*	0.09	0.09	0	0
1999	0.10	0.09	0	0
2000	0.09	0.09	0	0
2001	0.10	0.09	0	0

**Data for July-December*

Jean

One-Hour Ozone Concentrations



ID #32-003-0075 (SPMS/SLAMS) Joe Neal

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
2000*	0.10	0.10	0	0
2001	0.11	0.11	0	0

**Data for July-December*

Las Vegas - 6651 West Azure Avenue

ID #32-003-0078 (SPMS) Searchlight

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
2000*	0.08	0.08	0	0
2001	0.09	0.08	0	0

**Data for July-December*

Searchlight

ID #32-003-0023 (SPMS) Mesquite

YEAR	1st High	2nd High	Exceedance Hours	Exceedance Days
2001*	0.06	0.06	0	0

**Data for October-December*

Mesquite

TABLE 10

Eight-Hour Ozone Concentrations

Eight-Hour Federal Standard: 0.08 ppm

Reno, Sparks, Lemmon Valley, Incline Village, Mustang

ID #32-031-2009 (SLAMS)

Lemmon Valley

YEAR	4th High	Exceedance Year
1997	0.06	*No*
1998	0.07	*No*
1999	0.06	*No*
2000	0.07	*No*
2001	0.067	*No*

ID #32-031-0016 (NAMS/SLAMS)

Reno

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.08	*No*
1999	0.07	*No*
2000	0.07	*No*
2001	0.068	*No*

ID #32-031-1005 (NAMS/SLAMS)

Sparks

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.07	*No*
1999	0.08	*No*
2000	0.07	*No*
2001	0.072	*No*

ID #32-031-0020 (NAMS/SLAMS)

South Reno

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.07	*No*
1999	0.08	*No*
2000	0.07	*No*
2001	0.075	*No*

ID #32-031-2002(SPMS/SLAMS)

Incline Village

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.07	*No*
1999	0.07	*No*
2000	0.06	*No*
2001*	0.071	*No*

**Affected by Star Fire, El Dorado National Forest, August*

SPMS

Mustang

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.07	*No*
1999	0.08	*No*
2000	0.07	*No*
2001	0.077	*No*

SPMS

Toll (Geiger Grade)

YEAR	4th High	Exceedance Year

TABLE 11

Eight-Hour Ozone Concentrations

Eight-Hour Federal Standard: 0.08 ppm

Carson City, Stateline, Fernley, Fallon, Zephyr Cove, Great Basin National Park

ID #32-510-0004 (SLAMS)

Carson City - Long Street

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.07	*No*
1999	0.07	*No*
2000	0.07	*No*
2001	0.071	*No*

ID #32-005-0004 (SLAMS)

Stateline - Horizon Casino Resort

YEAR	4th High	Exceedance Year
1996	0.07	*No*
1997	0.07	*No*
1998	0.07	*No*
1999*	0.06	*No*

**Data for January-June: discontinued monitoring*

(SPMS)

Fernley - Volunteer Fire Dept.

YEAR	4th High	Exceedance Year
1998	0.07	*No*
1999	0.07	*No*
2000	0.07	*No*
2001	0.065	*No*

(SPMS)

Fallon

YEAR	4th High	Exceedance Year
1999*	0.05	*No*
2000	0.07	*No*
2001	0.059	*No*

**Data for October-December*

ID #32-005-0008 (SLAMS)

Zephyr Cove - Cave Rock

YEAR	4th High	Exceedance Year
1999*	0.07	*No*
2000	0.07	*No*
2001	0.073	*No*

**Data for July-December*

ID #32-033-0101 (Great Basin National Park)

Great Basim National Park - Lehman Caves

Eight-Hour Ozone Concentrations

YEAR	4th High	Exceedance Year
1990	*n/a*	*n/a*
1991	*n/a*	*n/a*
1992	*n/a*	*n/a*
1993	*n/a*	*n/a*
1994	0.07	*No*
1995	0.07	*No*
1996	0.07	*No*
1997	0.07	*No*
1998	0.07	*No*
1999	0.07	*No*
2000	0.077	*No*
2001	0.067	*No*

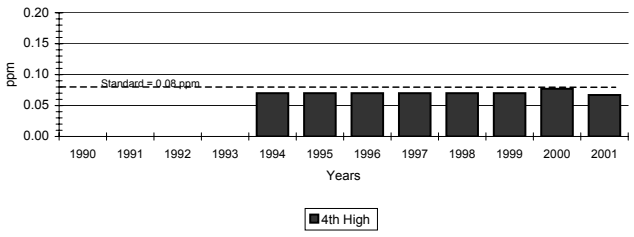


TABLE 12

Eight-Hour Ozone Concentrations

Eight-Hour Federal Standard: 0.08 ppm

Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

ID #32-003-0007 (NAMS/SLAMS/SPMS) Powerline

Henderson - 545 West Lake Mead Drive

YEAR	4th High	Exceedance Year
1997	0.08	*No*
1998	0.08	*No*
1999	0.08	*No*
2000	0.07	*No*
2001	0.075	*No*

ID #32-003-0016 (NAMS/SLAMS/SPMS) City Center Gaseous

Las Vegas - 559 North Seventh Street

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.08	*No*
1999	0.06	*No*
2000	0.07	*No*
2001	0.063	*No*

ID # 32-003-0020 (NAMS/SLAMS/SPMS) Bemis

N. Las Vegas - 4701 Mitchell Street

YEAR	4th High	Exceedance Year
1997	0.08	*No*
1998	0.08	*No*
1999	0.07	*No*
2000	0.07	*No*
2001	0.070	*No*

ID #32-003-0021 (SLAMS/SPMS) Health District

Las Vegas - 625 Shadow Lane

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.07	*No*
1999	0.07	*No*
2000	0.07	*No*
2001*	0.068	*No*

**Site closed October 24, 2001*

ID #32-003-0538 (NAMS/SLAMS/SPMS) Winterwood

Las Vegas - 5483 Clubhouse Drive

YEAR	4th High	Exceedance Year
1997	0.07	*No*
1998	0.08	*No*
1999	0.08	*No*
2000	0.07	*No*
2001	0.071	*No*

ID #32-003-0022 (SPMS/SLAMS) Apex

12101 U. S. Highway 93

YEAR	4th High	Exceedance Year
1997	0.08	*No*
1998	0.08	*No*
1999	0.08	*No*
2000	0.08	*No*
2001	0.074	*No*

ID #32-003-0072 (SPMS/SLAMS) Lone Mountain

Las Vegas - 3525 North Valadez Street

YEAR	4th High	Exceedance Year
1997*	0.08	*No*
1998	0.08	*No*
1999	0.08	*No*
2000	0.08	*No*
2001	0.080	*No*

**Data for June-December*

'ID #32-003-0071 (SLAMS/SPMS) Walter Johnson

Las Vegas - 7701 Ducharme Avenue

YEAR	4th High	Exceedance Year

TABLE 12 Continued

Eight-Hour Ozone Concentrations

Eight-Hour Federal Standard: 0.08 ppm

Las Vegas, North Las Vegas, Henderson, U.S. Highway 93, Boulder City, Jean, Searchlight, Mesquite

ID #32-003-0073 (SPMS/SLAMS) Palo Verde

Las Vegas - 333 Pavilion Center Drive

YEAR	4th High	Exceedance Year
1998*	0.09	*Yes*
1999	0.08	*No*
2000	0.08	*No*
2001	0.078	*No*

**Data for June-December*

ID #32-003-0043 (SPMS/SLAMS) Paul Meyer Park

Las Vegas - 4525 New Forest Drive

YEAR	4th High	Exceedance Year
1998*	0.09	*Yes*
1999	0.08	*No*
2000	0.08	*No*
2001	0.076	*No*

** Data for July - December*

'ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

North Las Vegas - 1301B East Tonopah

YEAR	4th High	Exceedance Year
1998*	0.08	*No*
1999	0.08	*No*
2000	0.08	*No*
2001	0.071	*No*

** Data for October - December*

ID #32-003-0601 (SPMS/SLAMS) Boulder City

Boulder City - 1005 Industrial Road

YEAR	4th High	Exceedance Year
1998*	0.07	*No*
1999	0.08	*No*
2000	0.07	*No*
2001	0.071	*No*

**Data for August-December*

'ID #32-003-1019 (SLAMS/SPMS) Jean

Jean

YEAR	4th High	Exceedance Year
1998*	0.08	*No*
1999	0.08	*No*
2000	0.08	*No*
2001	0.079	*No*

**Data for July-December*

ID #32-003-0075 (SPMS/SLAMS) Joe Neal

Las Vegas - 6651 West Azure Avenue

YEAR	4th High	Exceedance Year
2000*	0.08	*No*
2001	0.083	*No*

**Data for July-December*

ID #32-003-0078 (SPMS) Searchlight

Searchlight

YEAR	4th High	Exceedance Year
2000*	0.07	*No*
2001	0.073	*No*

**Data for July-December*

TABLE 13

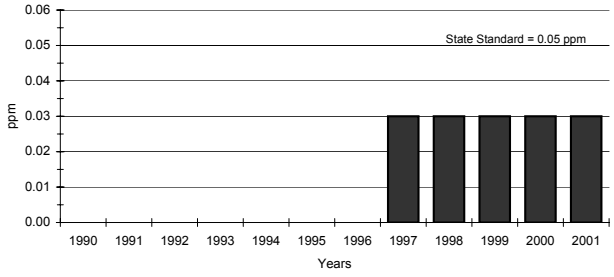
Nitrogen Dioxide Concentrations

State Standard for Annual Arithmetic Mean: 0.05 ppm; Federal Standard: 0.053 ppm
Reno, Incline Village

ID #32-031-0016 (NAMS/SLAMS/SPMS)

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1990	*no data*
1991	*no data*
1992	*no data*
1993	*no data*
1994	*no data*
1995	*no data*
1996	*no data*
1997	0.03
1998	0.03
1999	0.03
2000	0.03
2001	0.03

Reno
Nitrogen Dioxide Concentrations



ID #32-031-2002 (SPMS/SLAMS)

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1999*	0.01
2000	0.01
2001	0.01

Incline Village

** Data for March - December*

TABLE 14

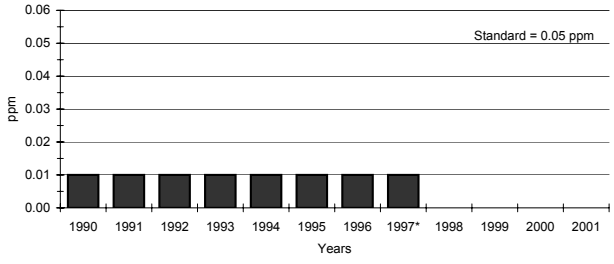
Nitrogen Dioxide Concentrations

State Standard for Annual Arithmetic Mean: 0.05 ppm; Federal Standard 0.53 ppm
Stateline, Carson City

ID #32-005-0004 (SLAMS)

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1990	0.01
1991	0.01
1992	0.01
1993	0.01
1994	0.01
1995	0.01
1996	0.01
1997*	0.01
1998	*no data*
1999	*no data*
2000	*no data*
2001	*no data*

Stateline - Horizon Casino Resort
Nitrogen Dioxide Concentrations



** Stopped monitoring in October 1997*

ID #32-32-510-0004 (SLAMS)

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1997*	0.01

Carson City - Long Street

** Stopped monitoring in October 1997*

TABLE 15

Nitrogen Dioxide Concentrations

State Standard for Annual Arithmetic Mean: 0.05 ppm

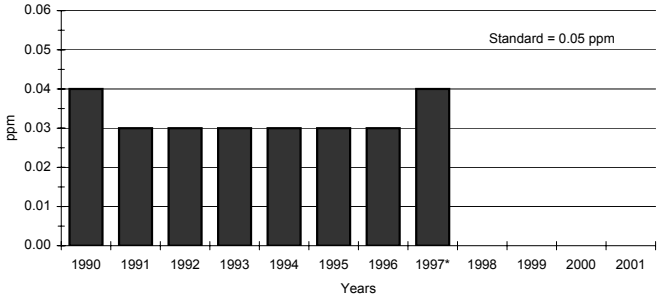
Las Vegas, North Las Vegas, Boulder City, U.S. Highway 93, Jean, Henderson, Searchlight, Mesquite

ID #32-003-0557 (NAMS/SLAMS) East Charleston

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1990	0.04
1991	0.03
1992	0.03
1993	0.03
1994	0.03
1995	0.03
1996	0.03
1997*	0.04
1998	*no data*
1999	*no data*
2000	*no data*
2001	*no data*

* *Data for January-March*

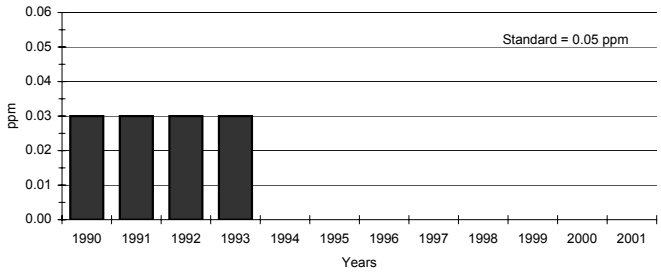
Las Vegas - 2850 E. Charleston Blvd.
Nitrogen Dioxide Concentrations



ID #32-003-0016 (NAMS/SLAMS/SPMS) City Center Gaseous

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1990	0.03
1991	0.03
1992	0.03
1993	0.03
1994	*no data*
1995	*no data*
1996	*no data*
1997	*no data*
1998	*no data*
1999	*no data*
2000	*no data*
2001	*no data*

Las Vegas - 559 North Seventh Street
Nitrogen Dioxide Concentrations



ID #32-003-0539 (NAMS/SLAMS/SPMS) Maycliff

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1997*	0.03
1998	0.03
1999	0.03
2000	0.02
2001	0.02

* *Incomplete year of operation*

Las Vegas - 4001 East Sahara Blvd.

ID #32-003-0601 (SPMS/SLAMS) Boulder City

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1997*	0.01
1998	0.01
1999	0.01
2000	0.01
2001	0.01

* *Incomplete year of operation*

Boulder City - 1005 Industrial Road

TABLE 15 Continued

Nitrogen Dioxide Concentrations

State Standard for Annual Arithmetic Mean: 0.05 ppm

Las Vegas, North Las Vegas, Boulder City, U.S. Highway 93, Jean, Henderson, Searchlight, Mesquite

ID #32-003-0022 (SPMS/SLAMS) Apex

12101 U.S. Highway 93

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1997	0.01
1998	0.01
1999	0.01
2000	0.00
2001	0.00

ID #32-003-1019 (SLAMS/SPMS) Jean

Jean

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1998*	0.01
1999	0.01
2000	0.00
2001	0.00

** Data for September - December*

ID #32-003-0073 (SPMS/SLAMS) Palo Verde

Las Vegas - 333 Pavilion Center Drive

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1998*	0.01
1999	0.01
2000	0.01
2001	0.01

** Data for August - December*

ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

North Las Vegas - 1301B East Tonopah

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
1998*	0.03
1999	0.02
2000	0.02
2001	0.02

** Data for November - December*

ID #32-003-0078 (SPMS) Searchlight

Searchlight

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
2001	0.01

ID #32-003-0563 (SPMS) Freedom Park

Las Vegas - 650 North Mojave Road

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
2001	0.02

ID #32-003-0023 (SPMS) Mesquite

Mesquite

YEAR	ANNUAL ARITHMETIC MEAN (ppm)
2001	0.01

TABLE 16

Sulfur Dioxide Concentrations

24-Hour Standard: 0.14 ppm; State Annual Mean Standard: 0.03 ppm; State 3-Hour Standard: 0.5 ppm
Las Vegas, Henderson, U.S. Highway 93, Boulder City, Searchlight

ID #32-003-0557 (NAMS/SLAMS) East Charleston

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
1993	0.02	0.02	0.00
1994	0.05	0.03	0.01

Las Vegas - 2850 East Charleston Blvd.

ID #32-003-0539 (NAMS/SLAMS/SPMS) Maycliff

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
1996	0.03	0.03	0.01
1997	0.02	0.01	0.00
1998	0.01	0.01	0.00
1999	0.02	0.02	0.00
2000	0.01	0.01	0.00
2001	0.01	0.01	0.00

Las Vegas - 4001 East Sahara Ave.

ID #32-003-0107 (SLAMS/SPMS) Pittman

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
1996	0.01	0.01	0.00

Henderson - 1137 North Boulder Hwy.

ID #32-003-0022 (SPMS) Apex

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
1997	0.00	0.00	0.00
1998	0.01	0.01	0.00
1999	0.01	0.01	0.00
2000	0.00	0.00	0.00
2001	0.00	0.00	0.00

12101 U.S. Highway 93

ID #32-003-0007 (NAMS/SPMS) Powerline

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
1997	0.01	0.00	0.00
1998	0.01	0.01	0.00

Henderson - 545 Lake Mead Drive

ID #32-003-0601 (SPMS/SLAMS) Boulder City

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
1998*	0.00	0.00	0.00
1999	0.02	0.01	0.00
2000	*n/a*	*n/a*	*n/a*
2001	0.00	0.00	0.00

** Data for August - December*

Boulder City - 1005 Industrial Road

ID #32-003-0078 (SPMS) Searchlight

YEAR	1st High 24 Hr. Average	2nd High 24 Hr. Average	Annual Arithmetic Mean (ppm)
2001	0.00	0.00	0.00

Searchlight

APPENDIX 4

AMBIENT AIR QUALITY DATA

PARTICULATE POLLUTANTS

APPENDIX 4

LIST OF TABLES

TABLE 1

PM10 Concentrations

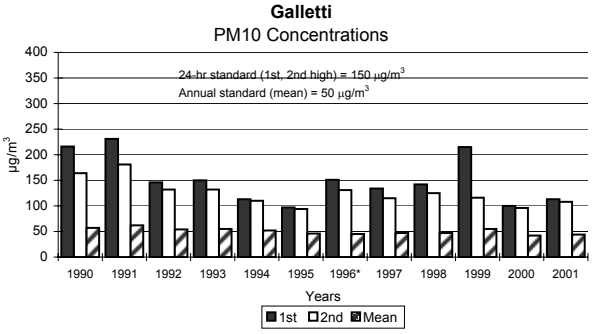
PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Reno, Sparks, Sun Valley, Incline Village, Mustang

Corrected to standard conditions

ID #32-031-0022 (NAMS/SLAMS)

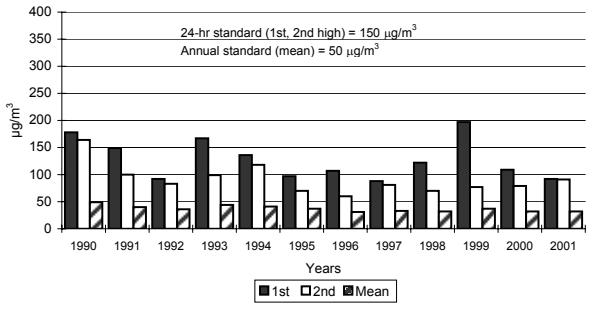
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	304	216	164	57	5
1991	156	231	181	62	6
1992	88	146	132	54	0
1993	57	150	132	55	0
1994	57	113	110	52	0
1995	58	97	94	46	0
1996*	58	151	131	45	0
1997	60	134	115	47	0
1998	60	142	125	47	0
1999	57	215	116	55	1
2000	60	100	96	42	0
2001	60	113	108	44	0



**The highest concentration, 151 µg/m^3, exceeds the state 24-hour standard but not the federal standard, which rounds to the nearest 10 µg/m^3.*

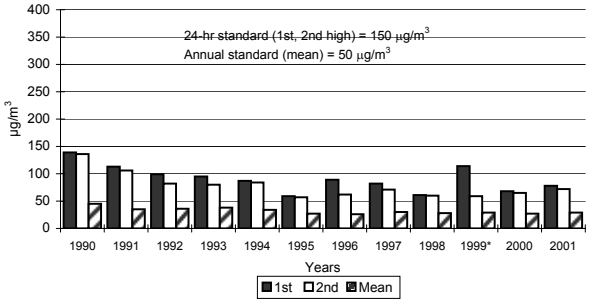
ID #32-031-0016 (NAMS/SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	58	178	164	49	2
1991	57	149	100	40	0
1992	53	92	83	36	0
1993	59	167	99	44	1
1994	58	136	118	41	0
1995	59	97	70	37	0
1996	59	107	60	31	0
1997	60	88	81	33	0
1998	61	122	70	32	0
1999	57	197	77	37	1
2000	58	109	79	32	0
2001	63	92	91	32	0



ID #32-031-1005 (NAMS/SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	60	139	136	45	0
1991	60	113	106	35	0
1992	60	99	82	36	0
1993	70	95	80	38	0
1994	58	87	84	34	0
1995	61	59	57	27	0
1996	61	89	62	26	0
1997	57	82	71	30	0
1998	58	61	60	28	0
1999*	57	114	59	29	0
2000	61	68	65	27	0
2001	63	78	72	29	0



**1st-high from collocated sampler when designated sampler did not run*

TABLE 1 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

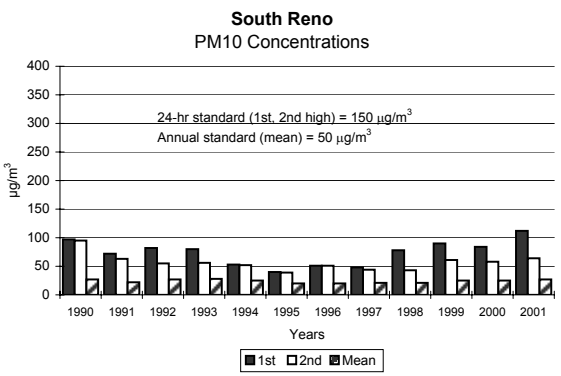
Reno, Sparks, Sun Valley, Incline Village, Mustang

Corrected to standard conditions

ID #32-031-0020 (NAMS/SLAMS)

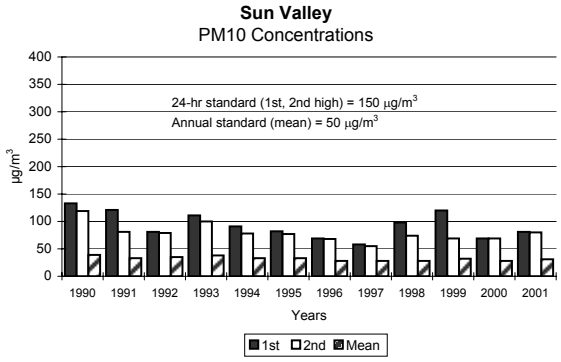
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	58	97	95	27	0
1991	58	72	63	22	0
1992	59	82	55	27	0
1993	59	80	56	28	0
1994	54	53	52	25	0
1995	56	40	39	20	0
1996	58	51	51	20	0
1997	58	48	44	21	0
1998	57	78	43	21	0
1999	59	90	61	25	0
2000	58	84	58	25	0
2001	57	112	64	27	0

**1st-high affected by Star Fire, El Dorado National Forest, 8/29/01*



ID #32-031-2006 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	59	133	119	39	0
1991	60	121	81	33	0
1992	56	81	79	35	0
1993	56	111	100	38	0
1994	57	91	78	33	0
1995	57	82	77	33	0
1996	58	69	68	28	0
1997	56	58	55	28	0
1998	59	98	74	28	0
1999	58	120	69	32	0
2000	61	69	69	28	0
2001	59	81	80	31	0



ID #32-031-2002(SPMS/SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	32	33	30	18	0
1994	59	42	35	17	0
1995	59	58	33	15	0
1996	59	57	44	15	0
1997	60	71	36	16	0
1998	58	56	38	17	0
1999	55	34	31	17	0
2000	59	35	34	16	0
2001*	59	136	52	17	0

**1st-high affected by Star Fire, El Dorado National Forest, 8/29/01*

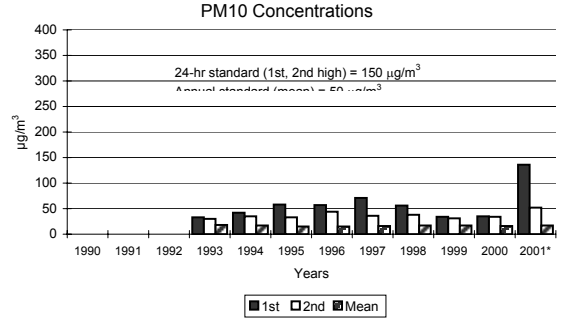


TABLE 1 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Reno, Sparks, Sun Valley, Incline Village, Mustang

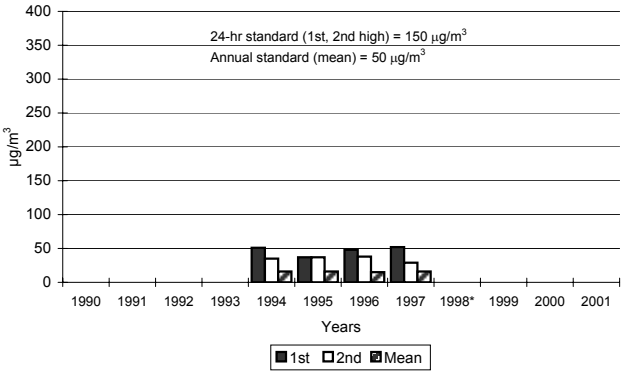
Corrected to standard conditions

(SPMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	59	51	35	16	0
1995	56	37	37	16	0
1996	58	48	38	15	0
1997	57	52	29	16	0
1998*	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

**Discontinued monitoring March 1, 1998*

Mustang
PM10 Concentrations



(SPMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	55	107	64	23	0
1997	58	82	38	19	0
1998	58	63	45	19	0
1999	58	74	54	23	0
2000	60	45	43	21	0
2001*	61	144	54	22	0

**1st-high affected by Star Fire, El Dorado National Forest, 8/29/01*

Toll (Geiger Grade)
PM10 Concentrations

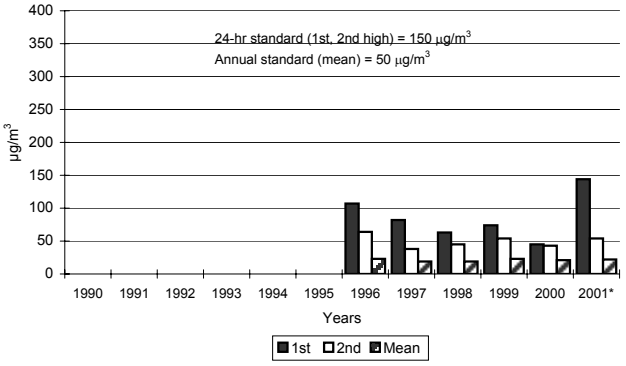


TABLE 2

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Carson City, Minden, Gardnerville, Stateline, Fernley, Zephyr Cove

Corrected to standard conditions

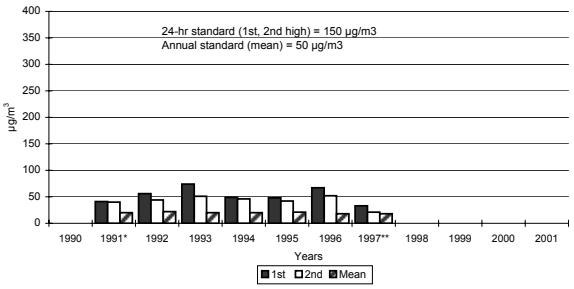
ID #32-510-0002 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991*	42	41	40	20	0
1992	56	56	44	22	0
1993	55	74	51	20	0
1994	58	49	46	20	0
1995	55	48	42	21	0
1996	57	67	52	18	0
1997**	5	33	21	18	0
1998	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

* *New site: incomplete year of operation*

** *Discontinued site: incomplete year of operation*

Carson City - East 5th Street
PM10 Concentrations



ID #32-510-0004 (SLAMS/SPMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1997*	49	67	47	20	0
1998**	25	50	32	15	0

* *New site: incomplete year of operation*

** *Discontinued monitoring: data for January - June*

Carson City - Long Street

ID #32-510-0003 (SLAMS)

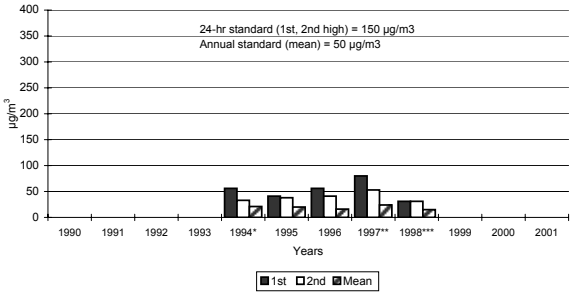
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994*	29	56	33	21	0
1995	57	41	38	20	0
1996	58	56	41	16	0
1997**	58	80	53	24	0
1998***	15	31	31	15	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

* *New site: incomplete year of operation*

** *1/10/97 exceedance excluded as an exceptional event (flood silt)*

*** *Discontinued site: data for January - March*

Carson City - Bordewich School
PM10 Concentrations



ID #32-005-0004 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990*	48	55	49	25	0
1991**	55	76	58	23	0
1992	59	66	56	27	0
1993	57	72	68	22	0
1994	60	104	75	22	0
1995	59	95	72	23	0
1996	57	73	58	22	0
1997	56	59	49	18	0
1998***	15	66	38	19	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

* *Power disruption due to construction: incomplete year of operation*

** *Affected by smoke & dust from construction of casino parking garage*

*** *Discontinued monitoring: data for January - March*

Stateline - Horizon Casino Resort
PM10 Concentrations

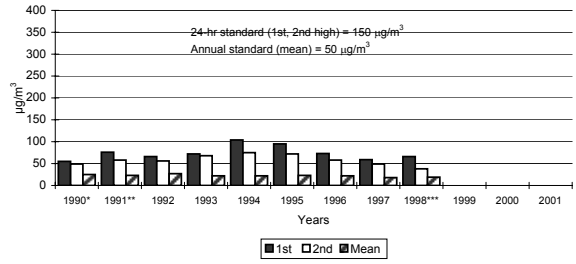


TABLE 2 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Carson City, Minden, Gardnerville, Stateline, Fernley, Zephyr Cove

Corrected to standard conditions

ID #32-005-0005 (SLAMS)

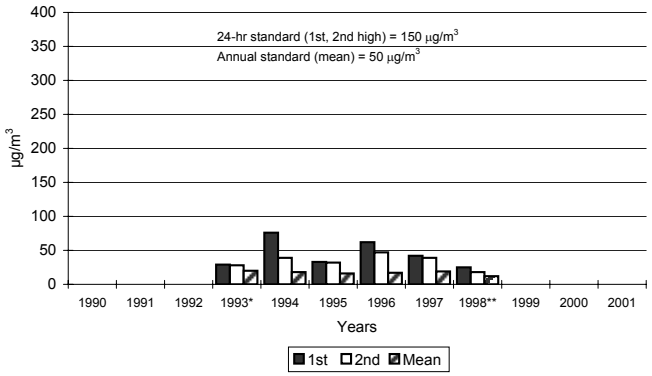
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993*	24	29	28	20	0
1994	55	76	39	18	0
1995	60	33	32	16	0
1996	60	62	47	17	0
1997	58	42	39	19	0
1998**	15	25	18	12	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

* *New site: incomplete year of operation*

** *Discontinued site: data for January - March*

Minden - Dispatch Center

PM10 Concentrations



ID #32-005-0006 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1994*	30	38	35	21	0
1995	61	34	33	19	0
1996**	9	26	18	14	0

* *New site: incomplete year of operation*

** *Discontinued site: incomplete year of operation*

Gardnerville - Mitch Drive

ID #32-005-0007 (SLAMS/SPMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1996	60	91	82	17	0
1997	59	43	34	19	0
1998*	30	58	38	13	0

* *Discontinued monitoring: data for January - June*

Gardnerville - Lyell Way

(SPMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1995*	40	37	35	21	0
1996	59	104	96	18	0
1997	59	43	37	16	0
1998**	47	43	40	16	0

* *New site: incomplete year of operation*

** *Discontinued monitoring*

Fernley - Intermediate School

ID #32-005-0008 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
2000	60	21	19	9	0
2001	60	55	49	11	0

Zephyr Cove - Cave Rock

TABLE 3

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Elko, Lovelock, Fallon, McGill, Lehman Caves, Battle Mountain

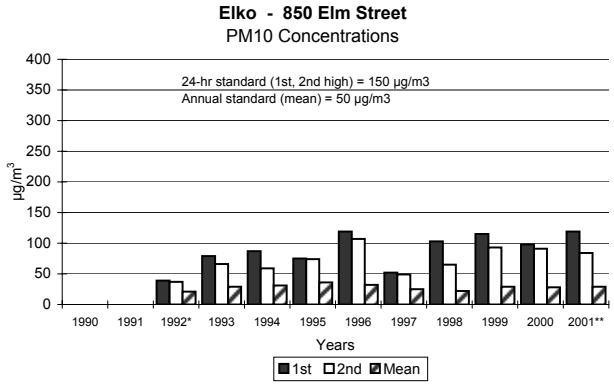
Corrected to standard conditions

ID #32-007-0004 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992*	9	39	37	21	0
1993	59	79	66	29	0
1994	54	87	59	31	0
1995	52	75	74	36	0
1996	55	119	107	32	0
1997	58	52	49	25	0
1998	54	103	65	22	0
1999	348	115	93	29	0
2000	227	98	91	28	0
2001**	262	119	84	29	0

**New site: incomplete year of operation*

***Data for April-December*

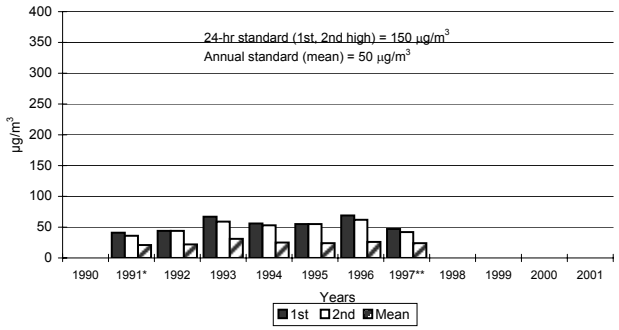


ID #32-027-0002 (SPMS/SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991*	26	41	36	21	0
1992	53	44	44	22	0
1993	51	67	59	31	0
1994	43	56	53	25	0
1995	27	55	55	24	0
1996	56	69	62	26	0
1997**	27	47	42	24	0
1998	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

** New site: incomplete year of operation*

*** Discontinued site: incomplete year of operation*



ID #32-001-0002 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993*	35	111	103	40	0
1994	45	66	62	27	0
1995	47	74	60	28	0
1996	54	102	61	25	0
1997	53	53	53	26	0
1998**	25	79	47	19	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

** New site: incomplete year of operation*

*** Discontinued site: data for January - June*

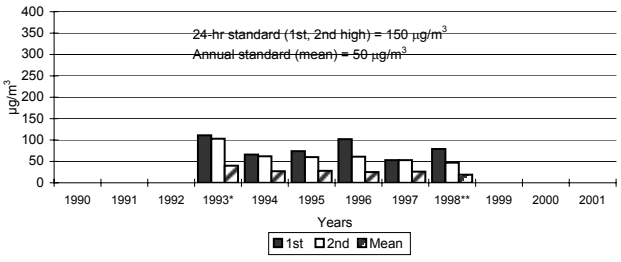


TABLE 3 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Elko, Lovelock, Fallon, McGill, Lehman Caves, Battle Mountain

Corrected to standard conditions

ID #32-033-0002 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993*	28	26	23	15	0
1994	56	60	49	14	0
1995	61	149	66	20	0
1996**	58	55	53	19	0
1997	61	25	24	14	0
1998***	15	22	19	11	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

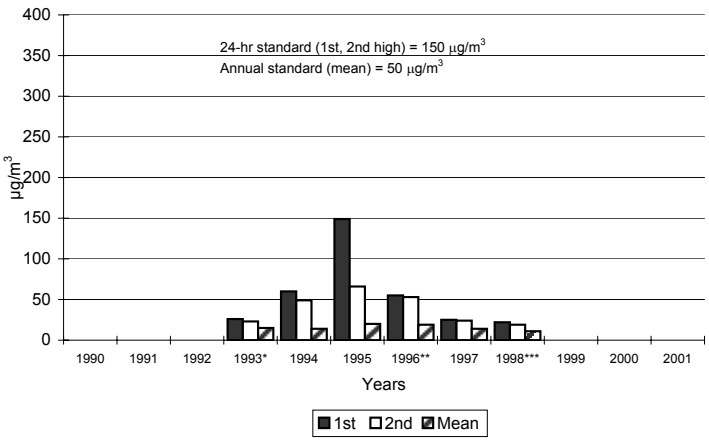
** New site: incomplete year of operation*

*** August 13, 1996 exceedance excluded as a natural event (high wind)*

**** Discontinued site: data for January - March*

McGill

PM10 Concentrations



IS #32-033-0007 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1993*	27	50	22	11	0
1994	58	24	20	8	0
1995**	20	13	9	6	0

** New site: incomplete year of operation*

*** Discontinued site: incomplete year of operation*

Lehman Caves - Maintenance Bldg.

ID #32-033-0008 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1995*	33	22	22	8	0
1996	55	29	25	9	0
1997**	25	15	13	6	0

** New site: incomplete year of operation*

*** Discontinued site: incomplete year of operation*

Lehman Caves - IMPROVE Site

TABLE 3 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Elko, Lovelock, Fallon, McGill, Lehman Caves, Battle Mountain

Corrected to standard conditions

ID #32-015-0002 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990*	48	127	111	43	0
1991	56	65	56	30	0
1992	60	83	46	31	0
1993	61	75	72	34	0
1994	61	95	66	33	0
1995	50	95	65	34	0
1996**	53	91	80	37	0
1997	56	83	64	32	0
1998***	42	64	41	30	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

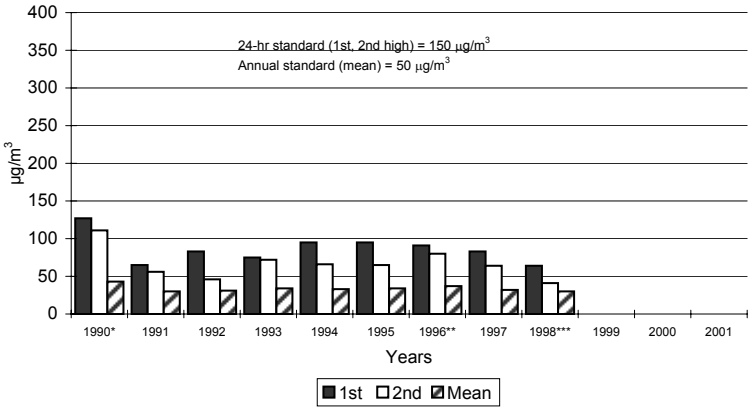
**August 9, 1990 exceedance excluded as an exceptional event (high wind)*

***October 18, 1996 exceedance excluded as a natural event (high wind)*

****Moved to new site with continuous monitor due to siting concerns; April 23, 1998 exceedance excluded as a natural event (high wind)*

Battle Mountain - Police/Fire Station

PM10 Concentrations



ID #32-015-0004 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1998*	127	75	67	18	0
1999	352	136	120	24	0
2000	336	127	91	22	0
2001	355	129	102	25	0

** Data for August - December*

Battle Mountain - Junior High School

SPMS

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
2001*	266	242	215	43	4

** Started monitoring with BAM 1/25/01; data for March 27-June 7 missing due to flow rates outside tolerance*

Pahrump

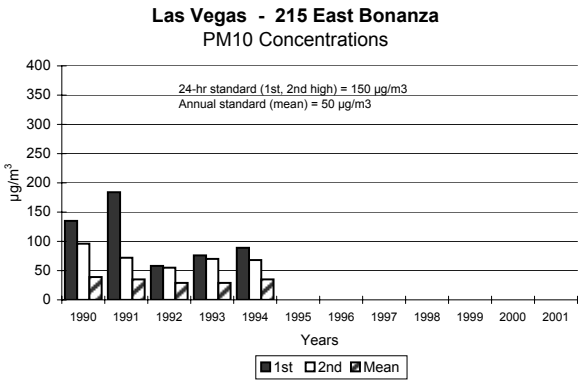
TABLE 4

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3
Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite
Corrected to standard conditions

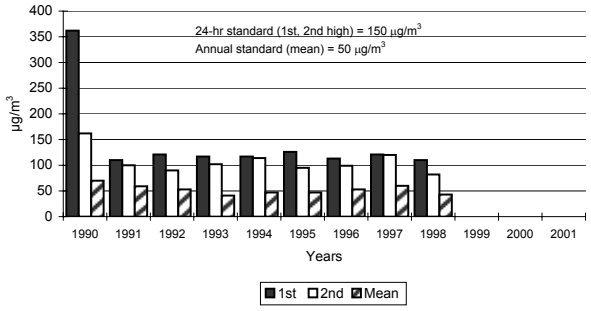
ID #32-003-1001 (NAMS) City Center

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	60	135	96	39	0
1991	54	184	72	35	1
1992	58	58	55	29	0
1993	58	76	70	29	0
1994	57	89	68	35	0
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	*no data*	---	---	---	---
1998	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---



ID #32-003-2001 (NAMS) McDaniel Post Office

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	57	362	162	70	3
1991	49	110	100	59	0
1992	49	121	90	53	0
1993	54	117	102	41	0
1994	57	117	114	47	0
1995	49	126	95	47	0
1996	51	113	99	53	0
1997	50	121	120	60	0
1998	58	110	82	43	0
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---



ID #32-003-0005 (SLAMS) Burkholder

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	57	227	79	34	1
1991	59	157	143	36	1
1992	58	53	45	24	0
1993	60	51	50	22	0
1994	59	46	40	20	0
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	*no data*	---	---	---	---
1998	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---

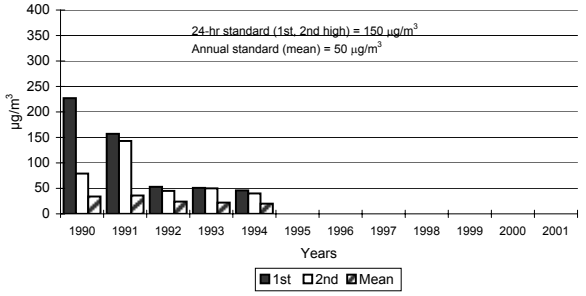


TABLE 4 Continued

PM10 Concentrations

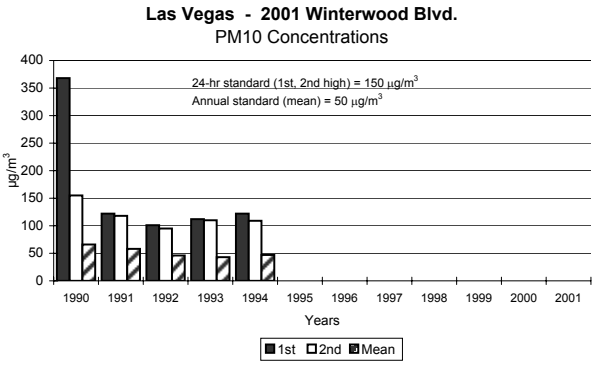
PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

Corrected to standard conditions

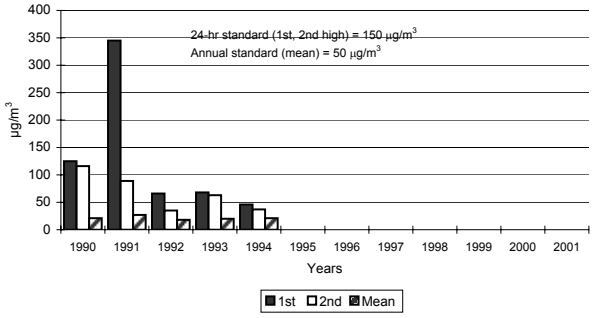
ID #32-003-0017 (NAMS) Wengert

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	58	368	155	66	3
1991	56	122	118	58	0
1992	53	101	95	46	0
1993	57	112	110	43	0
1994	55	122	109	47	0
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	*no data*	---	---	---	---
1998	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---



ID #32-003-0019 (SLAMS) Frias

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	45	125	116	21	0
1991	56	345	89	27	1
1992	51	66	35	18	0
1993	60	68	63	20	0
1994	59	46	37	21	0
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	*no data*	---	---	---	---
1998	*no data*	---	---	---	---
1999	*no data*	---	---	---	---
2000	*no data*	---	---	---	---
2001	*no data*	---	---	---	---



ID #32-003-0539 (NAMS/SLAMS/SPMS) Maycliff

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	357	129	128	44	0
1996	293	300	270	51	4
1997	331	186	103	35	1
1998	338	98	82	32	0
1999	347	128	108	37	0
2000	357	137	131	33	0
2001	342	111	102	34	0

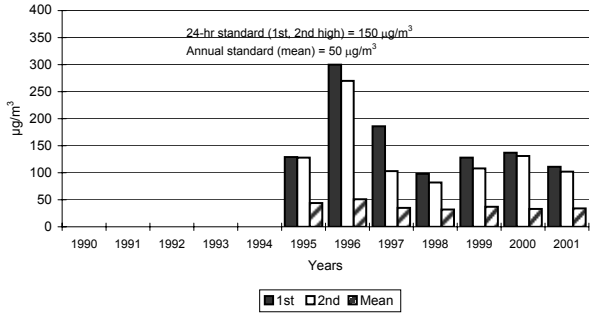


TABLE 4 Continued

PM10 Concentrations

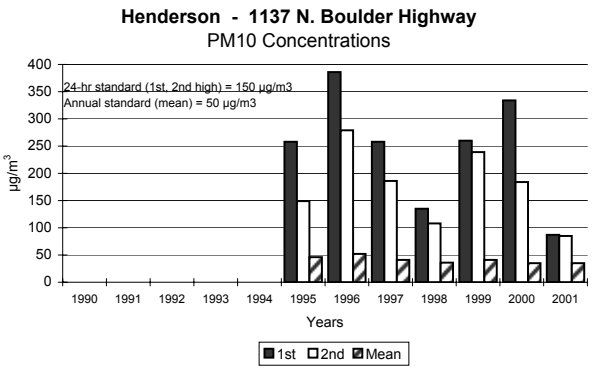
PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

Corrected to standard conditions

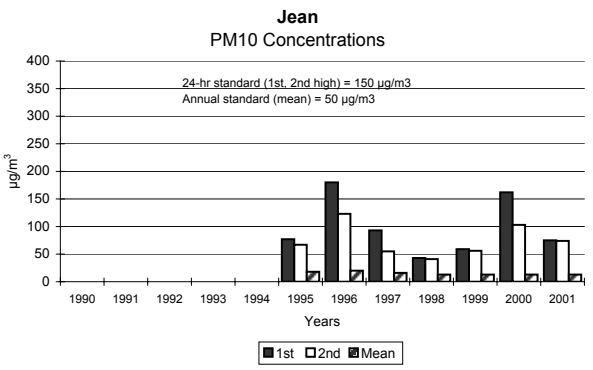
ID #32-003-0107 (SLAMS/SPMS) Pittman

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	338	258	149	46	1
1996	285	386	279	52	7
1997	344	258	186	41	2
1998	328	135	108	36	0
1999	337	260	239	41	5
2000	328	334	184	35	2
2001	140	87	85	35	0



ID #32-003-1019 (SLAMS/SPMS) Jean

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	354	77	67	18	0
1996	298	180	123	20	1
1997	338	93	55	16	0
1998	289	43	41	13	0
1999	344	59	56	13	0
2000	343	162	103	13	1
2001	334	75	74	13	0



ID #32-003-0071 (SLAMS/SPMS) Walter Johnson

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	279	113	100	29	0
1996	295	256	111	35	1
1997	334	108	85	23	0
1998	330	59	57	20	0
1999	339	56	51	23	0
2000	340	105	91	23	0
2001	342	92	81	24	0

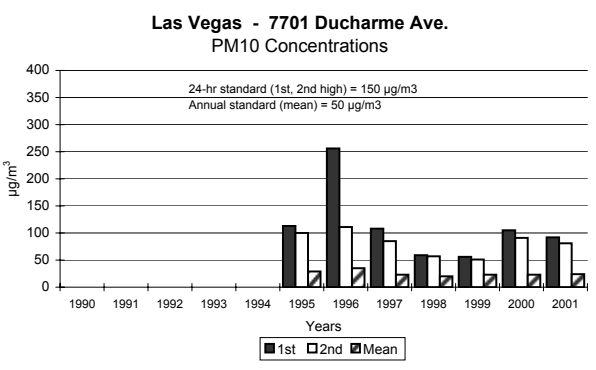


TABLE 4 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

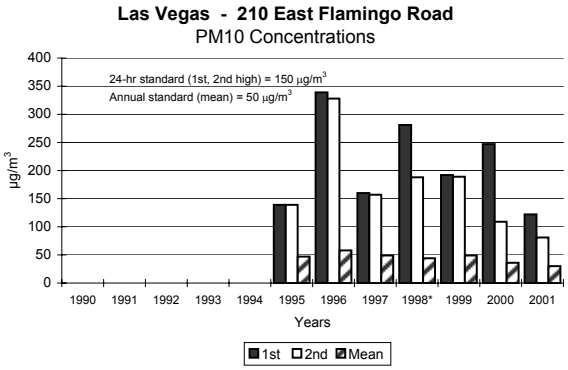
Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

Corrected to standard conditions

ID #32-003-1022 (NAMS/SLAMS/SPMS) Flamingo

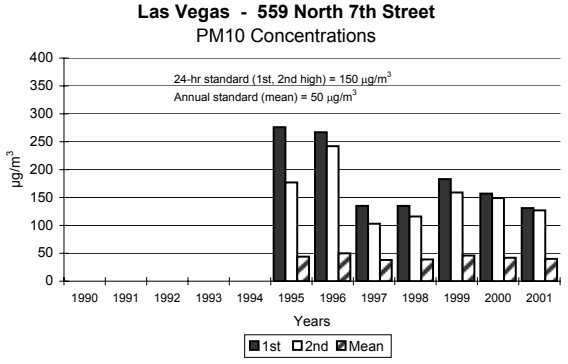
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	322	139	139	47	0
1996	255	339	328	58	4
1997	337	160	157	49	2
1998*	240	281	188	44	2
1999	315	192	189	49	3
2000	331	247	109	36	1
2001	334	122	81	30	0

** Data for January - June and October - December*



ID #32-003-0016 (NAMS/SLAMS/SPMS) City Center Gaseous

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	360	276	177	44	2
1996	288	267	242	50	5
1997	342	135	103	38	0
1998	339	135	116	39	0
1999	347	183	159	46	2
2000	348	157	149	42	1
2001	333	131	127	40	0



ID #32-003-0558 (SPMS/SLAMS) Microscale

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	340	136	130	45	0
1998	338	132	123	39	0
1999	346	127	117	45	0
2000	350	157	124	41	1
2001	339	118	109	38	0

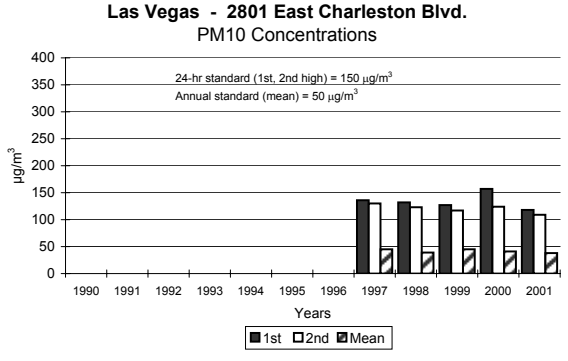


TABLE 4 Continued

PM10 Concentrations

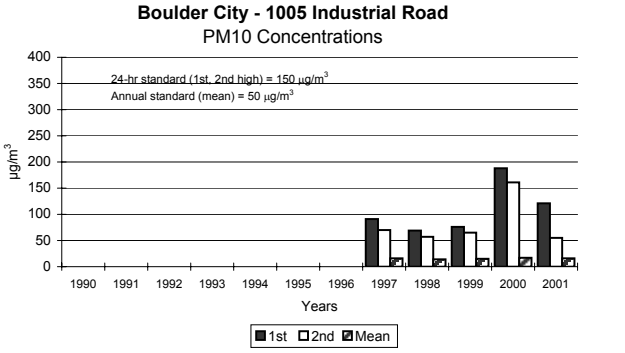
PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

Corrected to standard conditions

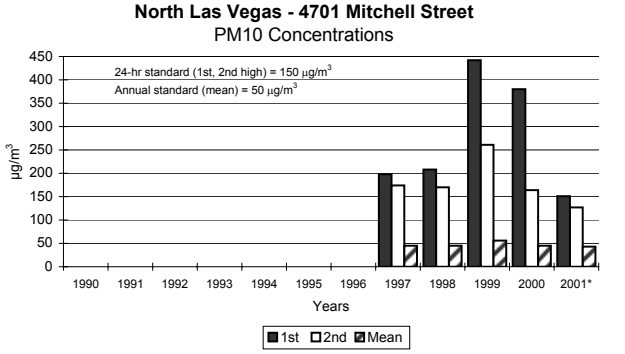
ID #32-003-0601 (SPMS/SLAMS) Boulder City

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	335	91	70	16	0
1998	343	69	57	14	0
1999	350	76	65	15	0
2000	351	188	161	17	2
2001	343	121	55	16	0



ID #32-003-0020 (NAMS/SLAMS/SPMS) Bemis/Craig Road

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	335	198	174	45	3
1998	331	208	170	45	3
1999	338	442	261	56	6
2000	338	380	164	45	4
2001*	340	151	127	43	0



**The highest concentration, 151 µg/m^3, exceeds the state 24-hour standard but not the federal standard, which rounds to the nearest 10 µg/m^3.*

ID #32-003-0022 (SPMS/SLAMS) Apex

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	347	105	56	17	0
1998	334	191	125	19	1
1999	346	351	111	20	1
2000	351	508	177	21	2
2001	336	92	89	20	0

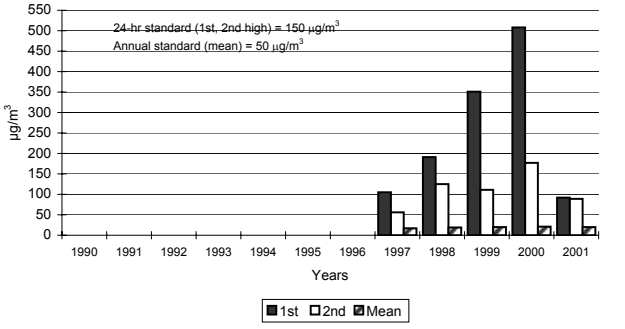


TABLE 4 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

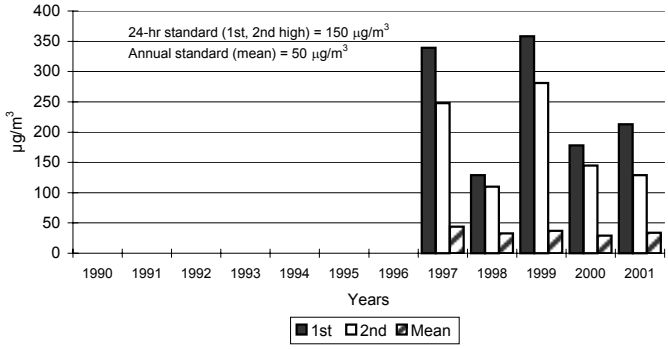
Corrected to standard conditions

ID #32-003-0298 (SPMS/SLAMS) Green Valley

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	333	339	248	44	4
1998	325	129	110	33	0
1999	324	358	281	37	3
2000	333	178	145	29	1
2001	333	213	129	34	1

Henderson - 248 Arroyo Grande

PM10 Concentrations

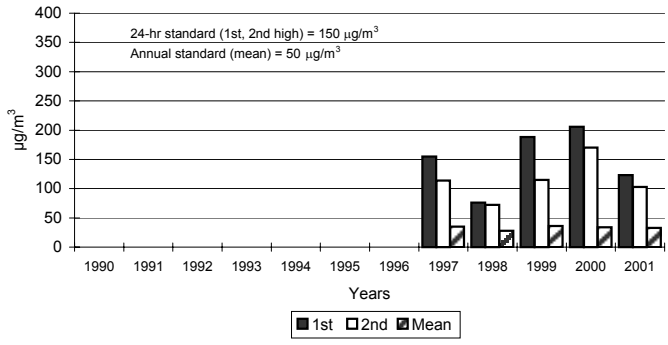


ID #32-003-0007 (NAMS/SLAMS/SPMS) Powerline/Henderson/S.E. Valley

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	342	155	114	35	1
1998	338	76	72	28	0
1999	343	188	115	36	1
2000	337	206	170	34	2
2001	340	123	103	33	0

Henderson - 545 West Lake Mead Drive

PM10 Concentrations

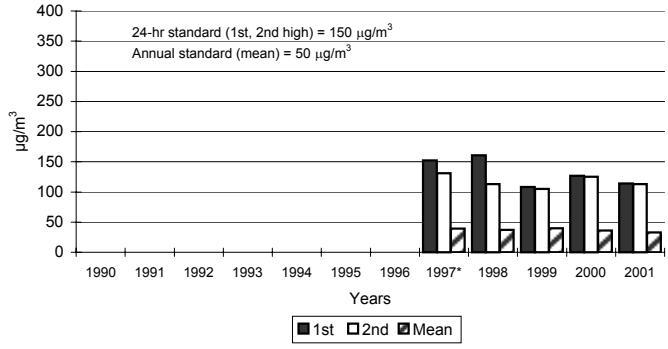


ID #32-003-0043 (SPMS/SLAMS) Paul Meyer Park

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997*	335	152	131	39	0
1998	336	161	113	37	1
1999	346	108	105	40	0
2000	351	127	125	36	0
2001	337	114	113	33	0

Las Vegas - 4525 New Forest Drive

PM10 Concentrations



**The highest concentration, 152 µg/m^3, exceeds the state 24-hour standard, but not the federal standard, which rounds to the nearest 10 µg/m^3.*

ID #32-003-2002 (SPMS) McDaniel

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1997	331	397	241	65	7
1998*	239	169	114	39	1

** Data for January - September*

N. Las Vegas - 1600 E. Lake Mead Blvd.

TABLE 4 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

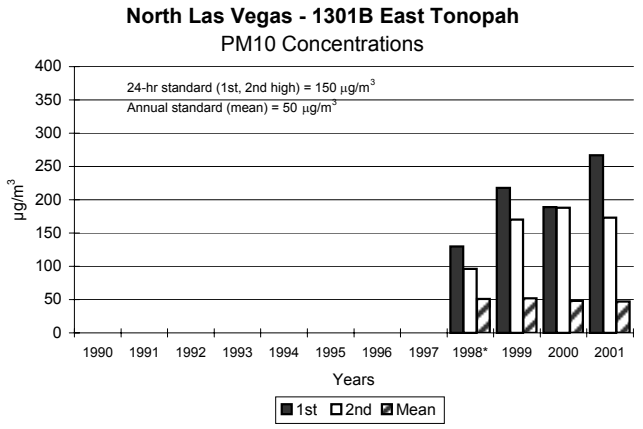
Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

Corrected to standard conditions

ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	*no data*	---	---	---	---
1998*	86	130	96	51	0
1999	336	218	170	52	2
2000	343	189	188	48	2
2001	338	267	173	47	2

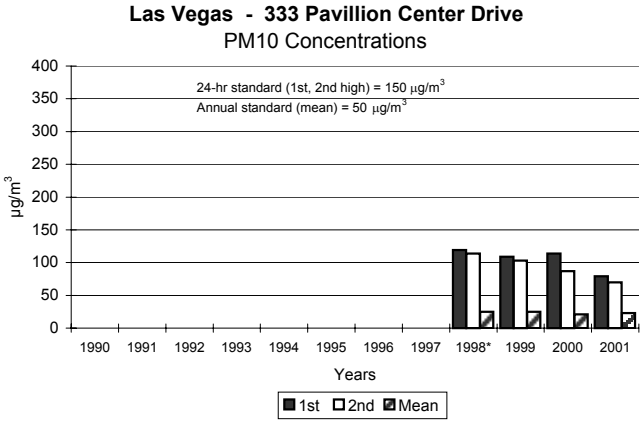
** Data for October - December*



ID #32-003-0073 (SPMS/SLAMS) Palo Verde

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	*no data*	---	---	---	---
1998*	189	119	114	25	0
1999	342	109	103	25	0
2000	322	114	87	21	0
2001	341	79	70	23	0

** Data for June - December*



ID #32-003-0072 (SPMS/SLAMS) Lone Mountain

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
1990	*no data*	---	---	---	---
1991	*no data*	---	---	---	---
1992	*no data*	---	---	---	---
1993	*no data*	---	---	---	---
1994	*no data*	---	---	---	---
1995	*no data*	---	---	---	---
1996	*no data*	---	---	---	---
1997	192	111	97	33	0
1998	324	94	67	28	0
1999	342	97	85	32	0
2000	340	102	81	25	0
2001	338	93	78	26	0

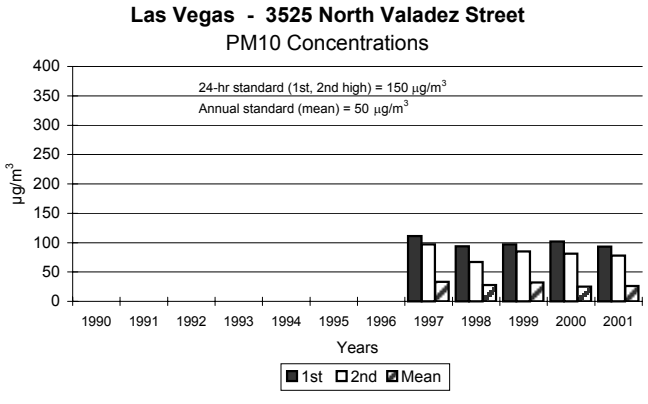


TABLE 4 Continued

PM10 Concentrations

PM10 Standards: 24-Hour Sample: 150 µg/m^3; Annual Arithmetic Mean: 50 µg/m^3

Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City, Mesquite

Corrected to standard conditions

ID #32-003-0075 (SPMS/SLAMS) Joe Neal

Las Vegas - 6651 W. Azure Avenue

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
2001	341	232	124	41	1

ID #32-003-0023 (SPMS) Mesquite

Mesquite - 465 E. Old Mill Road

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	24-hr. Exceedances
2001	65	50	48	25	0

TABLE 5

PM2.5 Concentrations

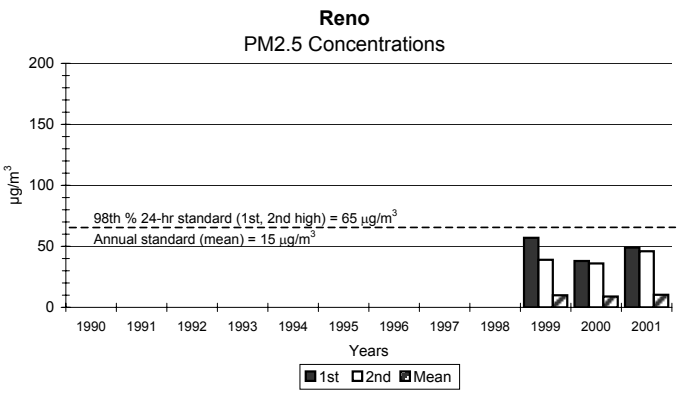
PM2.5 Federal Standards: 98th Percentile 24-Hour Sample: 65 µg/m^3; Annual Arithmetic Mean: 15.0 µg/m^3

Reno, Incline Village

Local conditions

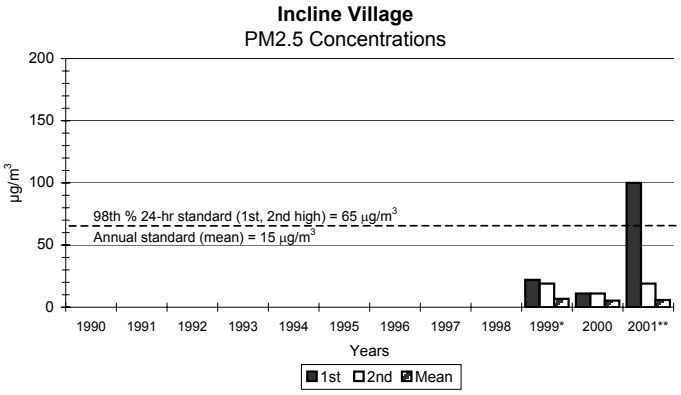
ID #32-031-0016 (NAMS/SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	*no data*	---	---	---	---	---
1998	*no data*	---	---	---	---	---
1999	118	57	39	9.9	0	Yes
2000	119	38	36	8.9	0	Yes
2001	121	49	46	10.3	0	Yes



ID #32-031-2002(SPMS/SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	*no data*	---	---	---	---	---
1998	*no data*	---	---	---	---	---
1999*	65	22	19	6.7	0	Yes
2000	68	11	11	5.3	0	Yes
2001**	121	100	19	5.8	0	Yes



**Data for May-December*

***1st-high affected by Star Fire, El Dorado National Forest, 8/29/01*

TABLE 6

PM2.5 Concentrations

PM2.5 Federal Standards: 98th Percentile 24-Hour Sample: 65 µg/m^3; Annual Arithmetic Mean: 15.0 µg/m^3

Carson City, Gardnerville, Fernley, Zephyr Cove

Local conditions

ID #32-510-0004 (SLAMS/SPMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	*no data*	---	---	---	---	---
1998*	240	21	19	7.6	0	No
1999**	324	36	25	3.9	0	No
2000	365	30	30	4.9	0	No
2001***	349	71	60	5.0	0	No

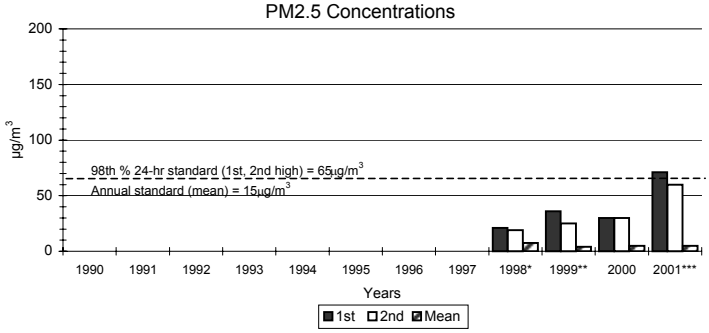
**No data for August, September, December*

***No data for February*

****1st- and 2nd-high during Star Fire, August*

Carson City - Long Street

PM2.5 Concentrations



ID #32-005-0007 (SLAMS/SPMS)

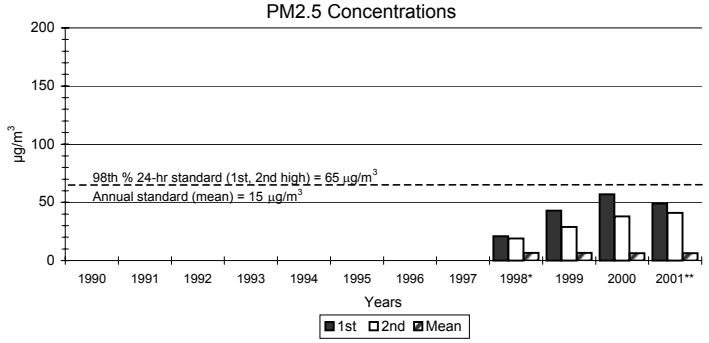
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	*no data*	---	---	---	---	---
1998*	149	21	19	6.5	0	No
1999	344	43	29	6.6	0	No
2000	337	57	38	6.4	0	No
2001**	340	49	41	6.4	0	No

**Data for January-June*

***Missing 6 days during Martis Fire in June*

Gardnerville - Lyell Way

PM2.5 Concentrations



SPMS

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1999*	187	32	24	4.4	0	No
2000	358	37	30	3.8	0	No
2001	345	55	41	5.5	0	No

**Data for June-December*

Fernley - Intermediate School

ID #32-005-0008 (SLAMS)

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
2000	68	10	9	4.2	0	Yes
2001*	122	41	22	4.6	0	Yes

**Affected by Star Fire, August*

Zephyr Cove - Cave Rock

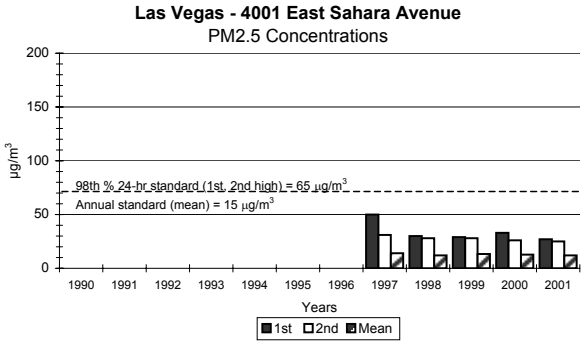
TABLE 7

PM2.5 Concentrations

PM2.5 Federal Standards: 98th Percentile 24-Hour Sample: 65 µg/m^3; Annual Arithmetic Mean: 15.0 µg/m^3
Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City
Local conditions

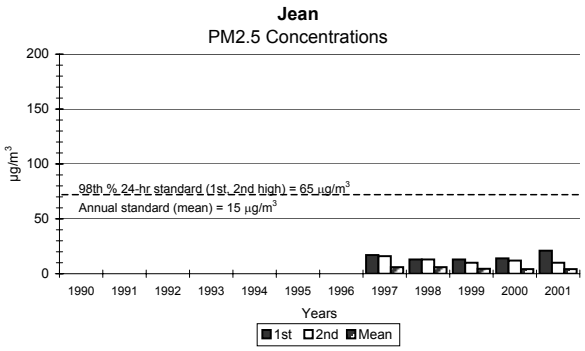
ID #32-003-0539 (NAMS/SLAMS/SPMS) Maycliff

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	344	50	31	14	0	No
1998	338	30	28	12	0	No
1999	349	29	28	13.3	0	No
2000	351	33	26	12.7	0	No
2001	338	27	25	12.0	0	No



ID #32-003-1019 (SLAMS/SPMS) Jean

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	337	17	16	6	0	No
1998	217	13	13	6	0	No
1999	90	13	10	4.5	0	Yes
2000	105	14	12	4.2	0	Yes
2001	109	21	10	4.2	0	Yes



ID #32-003-0558 (SPMS/SLAMS) Microscale

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997*	246	51	36	18	0	No
1998	*no data*	---	---	---	---	---
1999	324	40	38	11.7	0	Yes
2000	343	43	37	10.6	0	Yes
2001	347	56	47	10.6	0	Yes

**New site--incomplete year of operation*

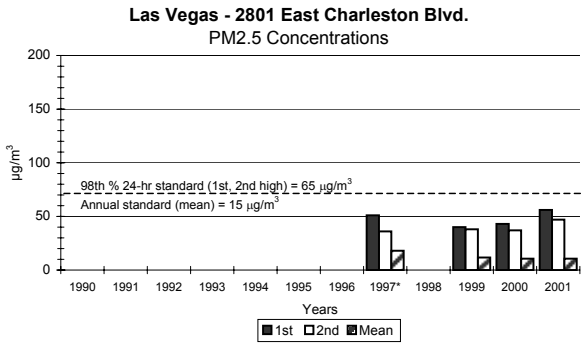


TABLE 7 Continued

PM2.5 Concentrations

PM2.5 Federal Standards: 98th Percentile 24-Hour Sample: 65 µg/m^3; Annual Arithmetic Mean: 15.0 µg/m^3
Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City
Local conditions

ID #32-003-0601 (SPMS/SLAMS) Boulder City

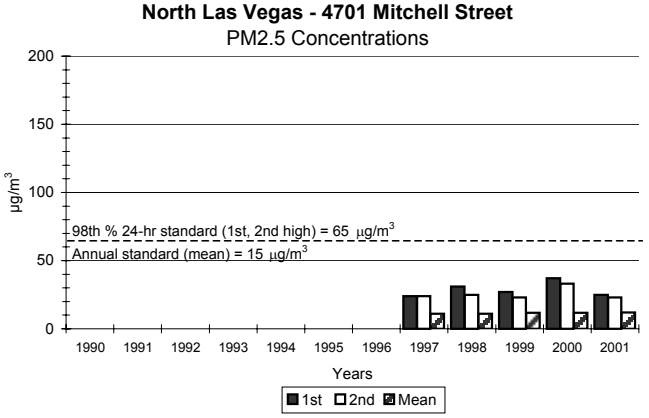
YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1999	347	14	13	5.8	0	No
2000	350	40	30	6.2	0	No
2001	338	23	22	6.0	0	No

Boulder City - 1005 Industrial Road

ID #32-003-0020 (NAMS/SLAMS/SPMS) Bemis/Craig Road

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	336	24	24	11	0	No
1998	333	31	25	11	0	No
1999	257	27	23	11.8	0	No
2000	327	37	33	11.8	0	No
2001	339	25	23	12.0	0	No

North Las Vegas - 4701 Mitchell Street



ID #32-003-0022 (SPMS/SLAMS) Apex

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1999	120	13	11	4.8	0	Yes
2000	72	10	9	4.3	0	Yes
2001	58	9	8	4.4	0	Yes

12101 U.S. Highway 93

ID #32-003-0298 (SPMS/SLAMS) Green Valley

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	339	27	26	11	0	No
1998	329	58	50	12	0	No
1999	327	37	35	10.0	0	No
2000	119	17	15	6.5	0	Yes
2001	118	18	14	6.6	0	Yes

Henderson - 248 Arroyo Grande

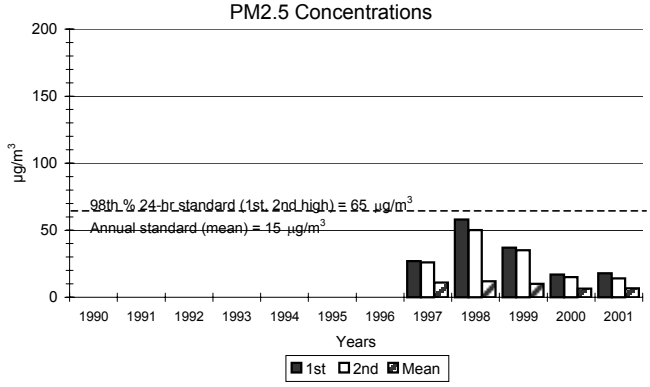


TABLE 7 Continued

PM2.5 Concentrations

PM2.5 Federal Standards: 98th Percentile 24-Hour Sample: 65 µg/m^3; Annual Arithmetic Mean: 15.0 µg/m^3

Las Vegas, North Las Vegas, Henderson, Jean, U.S. Highway 93, Boulder City

Local conditions

ID #32-003-2002 (SPMS) McDaniel

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1997	335	31	26	11	0	No
1998*	237	26	24	8	0	No

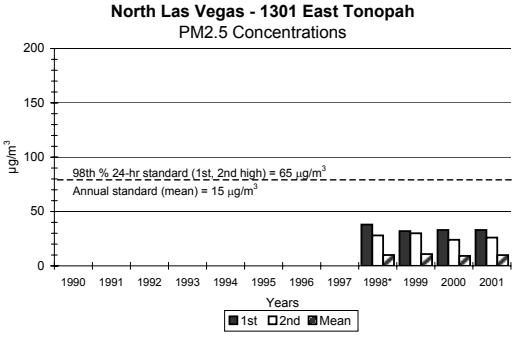
**Discontinued monitoring*

N. Las Vegas - 1600 E. Lake Mead Blvd.

ID #32-003-2002 (SLAMS/SPMS) J.D. Smith Middle School

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	*no data*	---	---	---	---	---
1998*	84	38	28	10	0	No
1999	83	32	30	10.8	0	Yes
2000	121	33	24	9.2	0	Yes
2001	116	33	26	9.9	0	Yes

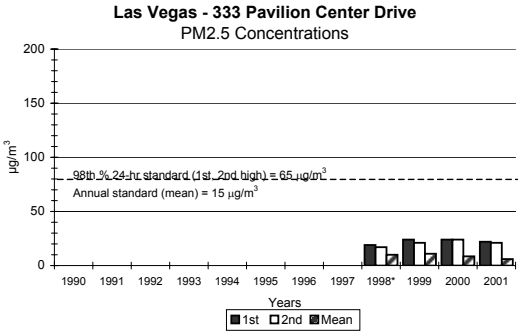
**Data for October-December*



ID #32-003-0073 (SPMS/SLAMS) Palo Verde

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997	*no data*	---	---	---	---	---
1998*	67	19	17	10	0	No
1999	323	24	21	10.9	0	No
2000	325	24	24	8.5	0	No
2001	325	22	21	6.0	0	No

**Data for September-December*



ID #32-003-0562 (NAMS/SLAMS/SPMS) Crestwood

YEARS	# of Samples	1st High	2nd High	Mean (Arith.)	98th % 24-Hr. Exceedances	FRM?
1990	*no data*	---	---	---	---	---
1991	*no data*	---	---	---	---	---
1992	*no data*	---	---	---	---	---
1993	*no data*	---	---	---	---	---
1994	*no data*	---	---	---	---	---
1995	*no data*	---	---	---	---	---
1996	*no data*	---	---	---	---	---
1997*	76	32	30	15	0	No
1998	342	41	37	11	0	No
1999	331	49	47	12.8	0	No
2000	335	28	26	10.8	0	No
2001	333	30	27	11.0	0	No

**New site--incomplete year of operation*